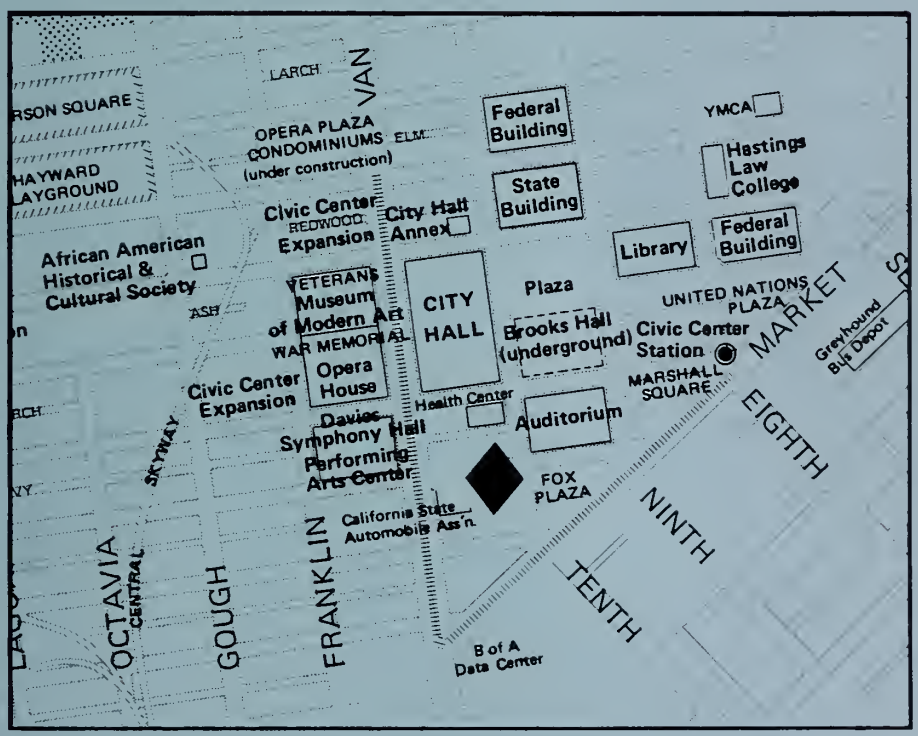
CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF CITY PLANNING

101 Hayes Street
Office/Retail

DRAFT ENVIRONMENTAL IMPACT REPORT

81.540 E



Publication Date: November 2, 1984

Public Comment Period: November 2 - December 6, 1984

Public Hearing Date: December 6, 1984

Written comments should be sent to the
Environmental Review Officer, 450 McAllister Street, 5th Floor
San Francisco, California 94102

City and County of San Francisco
Department of City Planning

450 McAllister Street
San Francisco, CA 94102

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CITY PLANNING COMMISSION
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TO: Distribution List for the 101 Hayes Street EIR

From: Alec S. Bash, Environmental Review Officer

SUBJECT: Request for the Final Environmental Impact Report for 101 Hayes Street

This is the draft of the Environmental Impact Report (EIR) for 101 Hayes Street. A public hearing will be held on the adequacy and accuracy of this document on December 6, 1984. After the public hearing, our office will prepare and publish a document titled "Summary of Comments and Responses," which will contain a summary of all relevant comments on this Draft EIR and our responses to those comments. It may also specify changes to this Draft EIR. Those who testify at the hearing on the draft will automatically receive a copy of the Comments and Responses document along with notice of the date reserved for certification (usually about 9 weeks after the hearing on the draft); others may receive such copies and notice on request or by visiting our office. This Draft EIR, together with the Summary of Comments and Responses document, will be considered by the City Planning Commission in an advertised public meeting and certified as a Final EIR is deemed adequate.

After certification, we will modify the Draft EIR as specified by the Comments and Responses document and print both documents in a single publication called the Final Environmental Impact Report. The Final EIR will add no new information to the combination of the two documents except to reproduce the certification resolution. It will simply provide the information in one rather than two documents. Therefore, if you receive a copy of the Comments and Responses document in addition to this copy of the Draft EIR, you will technically have a copy of the Final EIR.

We are aware that many people who receive the Draft EIR and Summary of Comments and Responses have no interest in receiving virtually the same information after the EIR has been certified. To avoid expending money and paper needlessly, we would like to send copies of the Final EIR to private individuals only if they request them.

If you want a copy of the Final EIR, please so indicate in the space provided on the next page and mail the request to the Office of Environmental Review within two weeks after certification of the Final EIR. Any private party not requesting a Final EIR by that time will not be mailed a copy. Public agencies on the distribution list will automatically receive a copy of the Final EIR. Copies will also be available at the Department of City Planning, 450 McAllister Street - 5th floor, San Francisco, California 94102.

Thank you for your interest in this project.

REQUEST FOR FINAL ENVIRONMENTAL IMPACT REPORT

To: Department of City Planning, Office of Environmental Review

Re: 101 Hayes Street Final EIR (81.540.E)

(___) Please send me a copy of the 101 Hayes Street Final EIR.

Signed: _____

Print Your Name and Address Below:

_____

(Name)

_____

(House Number and Street)

_____

(City, State and Zip Code)

If you are requesting an FEIR, please tear this page out, show your address above, fold the mailer so that your return address and the Department of City Planning address is exposed, seal, add postage and mail.
Thank you.

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450 McAllister Street - 5th Floor
San Francisco, CA 94102

ATTN: Mr. Jim McCormick

(Fold here)

City and County of San Francisco
Department of City Planning

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101 HAYES STREET
DRAFT ENVIRONMENTAL IMPACT STATEMENT
81.540 E

Publication Date: November 2, 1984

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TABLE OF CONTENTS

X. APPENDICES

Appendix A

1. Notice That An Environmental Impact Report is Determined To Be Required
2. Initial Study

Appendix B

Wind Study Report

Appendix C

1. Cumulative Impact Assumptions
   Table C-1, Projects Completed Before 1984
   Table C-2, Cumulative Office Development in Downtown San Francisco of March 10, 1984
   Table C-3, Passenger Levels of Service or Bus Transit
   Table C-4, Pedestrian Flow Regime
   Table C-5, Vehicular Levels of Service at Signalized Intersections
   Table C-6, Traffic Levels of Service for Freeways

Appendix List of Figures - Transportation

C-1 Photographs of Peak Muni Loading Conditions
C-2 Photos of Pedestrian Flow Levels

Appendix D

Existing Office Development and Regional Housing Requirements
1. Table D-1, Major Office Building Construction in San Francisco Through 1982 in Gross Square Feet
2. Table D-2, Housing Affordability by Household Income

LIST OF FIGURES

APPENDIX FIGURES

LIST OF TABLES

Appendix Tables

I. SUMMARY

A. Initial Study

An Initial Study for the proposed project was published by the Department of City Planning on July 28, 1982 and is included in Appendix A (pp. A-2 through A-28) of this EIR. The Department prepared a "Notice That an Environmental Impact Report is Determined to be Required" after determining that the project would have impacts related to visual quality and urban design, wind, employment, housing and fiscal factors, cumulative transportation, cumulative air quality, and growth inducement. Consequently, this EIR is focused on these issues. Those issues considered not to have significant environmental impacts were land use, visual quality as related to shading, project-generated transportation and air quality, noise, utilities and public services, biology, land, water, energy/natural resources, cultural resources and hazards.

B. Project Description

The project would be an 11-story, (160-foot) office building with ground floor retail located at the southwest corner of Hayes and Polk Streets (Assessor's Block 814, Lot 1, 16, 21) in a C-3-G (Downtown General Commercial) district. The 13,410 square foot "L-shaped" site would include 148 feet of frontage on Hayes Street and 60 feet of frontage on Polk Street. The project would provide 126,000 gross square feet of offices and 6,000 gross square feet of retail. The floor area ratio (FAR) would be 10 to 1. Eleven parking spaces would be located in the basement garage. The site for the proposed project is now occupied by a 64-space parking lot which is operated without a full-time attendant. Columbus Environmental Company is the project sponsor.

C. Summary of Impacts

Transportation: The project would result in about 3,190 net new person trip ends per day. There would be about 450 new outbound trips during the PM peak period with 270 during the PM peak hour. The project would add about 100 outbound trips to Muni, 80 trips to BART, and 70 new outbound vehicles during the P.M. peak period.

The list method of Cumulative Impact Assessment predicts 30,300 cumulative PM peak hour person-trip-ends (pte)/day from the C-3 District, about 45% less than the 53,500 pte/day predicted by the employment-based methodology for the year 2000. (See Transportation Impacts, p. 55) The list method predicts the

greatest impacts to be on Muni (600 - 3700, depending on the corridor) and BART (4,500 transbay trips). The employment-based method also predicts the greatest impact on these two transit systems but predicts relatively more trips on BART (11,800 Transbay BART trips and 1100 - 1800 Muni trips (under the Downtown Plan). This difference is due to the year for which the predictions were made, assumptions about housing in San Francisco, and assumptions about the capacity of roadways and transit availability.

The transit demand from the project would represent about 0.1 % of the cumulative transit demand in the Year 2000. Cumulative development under the Downtown Plan in the Year 2000 including planned capacity increases of transit carriers, is expected to cause the following changes in transit levels of service during the peak period: Muni Northeast Corridor - D to C, BART Transbay - F to E, AC Transit - C to D, Golden Gate Ferry - B to A, Tiburon Ferry - B to C, and CalTrain - B to C.

The project would generate 50 vehicle trips in the PM peak hour. Cumulative development by the Year 2000 is expected to cause a deterioration in the Level of Service on freeway ramps at the intersections of Bryant and Tenth Streets from "B" to "E", Bryant and Eighth from "B" to "C" and Van Ness and Broadway from "E" to "F".

About 0.1% of year 2000 Bay Bridge peak period traffic would be due to the project. About 0.1% of peak-period traffic on the Golden Gate Bridge, U.S. Highway 101 (south of Harney Way) and I-280 (between Alemany Boulevard and San Jose Avenue) would be due to the project. Because the Bay Bridge, Golden Gate Bridge and I-280/US 101 currently operate at or near capacity, peak hour volumes could not increase substantially, resulting in further spreading of the peak period or use of other transportation modes.

The C-3 District would generate a demand for about 58,000 long-term parking spaces by the Year 2000 under the Downtown Plan, an increase of 28% from 1984. The project would account for less than 0.2% of this demand. Short-term demand would continue to represent about 25% of the total demand. The parking supply has been assumed to be about 51,000 spaces. There would be a potential net deficit of about 7,000 parking spaces in the greater downtown area by 2000 if vehicular demand occurs as predicted.

The project would have one off-street loading space and delivery dock with access from Polk Street. This space would meet requirements as set in the City Planning Code and City Planning Resolution 9286.

Wind: The project would increase winds at the Hayes/Polk intersection during northwest and west winds. During southwest winds, the project would increase

winds at the west end of the project site and south of the site along Polk Street. The project otherwise would reduce or leave unchanged winds along Hayes and Polk Streets for all wind directions.

The project would not increase the area exceeding the pedestrian comfort criterion except at the southeast corner of the building during northwest winds. This condition occurs about 10% of the time in summer. The pedestrian hazard criterion would not be exceeded near the project site.

Visual Quality and Urban Design: The project would replace an asphalt surface parking lot with an 11-story, modern, L-shaped building. The design would respond to existing modern buildings in the vicinity rather than to the Beaux Arts style of buildings in the Civic Center. The height of the proposed building would be six to nine floors higher than the Civic Center buildings and ten to eighteen floors lower than modern buildings nearby such as Fox Plaza, 100 Van Ness Avenue, and the Bank of America buildings. The bulk of the building would not be greater than Civic Center buildings.

Design features such as a ground-floor pedestrian arcade, a rounded corner at the Hayes/Polk intersection, setbacks above the fourth story, and landscaped terraces on the fourth and fifth floors would be provided in an attempt to reduce apparent building mass and to add diversity to the streetscape. The proposed cornice line above the second floor would also provide a distinctive building base.

From the Market/Polk intersection, the project would block a portion of the view of the City Hall dome.

Employment and Housing: The project would accomodate about 480 permanent on-site jobs. About 445 additional jobs in the Bay Area would result from the multiplier effect of permanent jobs created by the project. The project would require about 139 person-years of construction labor, or about 90 construction jobs for the 18-month construction period. As a result of the multiplier effect of project construction, about 90 additional jobs would be generated. The project would create a demand for 112 residential units in San Francisco as a result of the new jobs on-site.

Cumulative Air Quality: The project would account for 0.4% of total air pollution expected to be generated by projects on the cumulative development list. Regional emissions are expected to decrease for all pollutants except particulates. No excesses of federal or state CO standards would occur on critical streets serving the project with either project-generated or cumulative traffic except at Bryant and Eighth in 1990. The projected effects of state and federal emissions controls on new vehicles, and the retirement of

older, more polluting vehicles, would more than offset the growth in emissions due to increased traffic volumes. Nonetheless, the project could incrementally impede the objectives of the Bay Area Air Quality Plan by generating additional pollutant emissions.

Growth Inducement: The cumulative effects of this project and other new office development in the neighborhood could increase land values and thereby encourage other similar projects on underdeveloped land near the site. In this manner, existing residents and businesses could be displaced by new commercial developments.

D. Major Mitigation Measures

Employment and Housing: The project sponsor could contribute to the City-Wide Shared Appreciation Mortgage Revenue Bond Program if this program is continued. If this program is not continued, the project sponsor would meet the housing requirement of 112 credits in a manner and within a time frame which would comply with the Office Housing Production Program (OHPP) Interim Guidelines for Administering The Housing Requirements Placed On New Office Development, adopted by motion by the City Planning Commission on January 26, 1982.

Cumulative Transportation: To minimize cumulative traffic impacts due to lane closures and street excavation during construction, the project sponsor would coordinate construction with other contractors for other nearby projects so that congestion is minimized.

The project would be subject to the development fee imposed under Ordinance No. 224-81 and other lawful measures that may be adopted by the Board of Supervisors for the purpose of generating funds to mitigate peak-hour transit congestion attributable to the project upon completion.

If required as part of an overall plan for the site block developed by Muni, the project would be designed to affix eyebolts or similar fixtures to the building for the suspension of overhead trolley wires.

Cumulative Air Quality: Strategies proposed for mitigating cumulative traffic impacts would also reduce emissions which contribute to the deterioration of air quality.

E. Alternatives

The two alternatives discussed in this EIR are "No Project" and "Compliance with The Downtown Plan." The latter would be a 120 foot commercial building which would be more out of scale with the adjacent 29-story Fox Plaza and the 100 Van Ness Avenue buildings than the proposed project, but less out of scale with nearby lowrise and Civic Center buildings. Outdoor terraces resulting in minor setbacks would be incorporated at the northwest and southeast corners of the building.

Non-bond property tax revenues would be less than the proposed project due to the reduction in gross floor area. Growth-inducing impacts of this alternative would be less due to the reduced square footage of office space as would daytime population density in the area.

The wind impacts with the alternative would be less than with the proposed project, as the shorter building would intercept less wind. While the building would reduce windspeeds at several locations, existing speeds exceed eleven mph in many instances and would continue to do so.

The daytime population density in the area would be less with the proposed project. Approximately 150 less permanent jobs (330 permanent jobs) would be accommodated. Daily trips related to both office and retail would be 2,718 or 15% less than with the proposed project. Peak hour trips would be 281 or 15% less than with the proposed project.

II. PROJECT DESCRIPTION

A. Sponsor's Objectives

Columbus Environmental Company, the project sponsor, proposes to build an 11-story office building on the southwest corner of Hayes and Polk Streets intersection in order to obtain a return on capital invested by satisfying a portion of the demand for office and retail space in central San Francisco. The project site, located in Assessor's Block (AB) 814, lots 1, 16, and 21, is entirely covered by a 64-space surface parking lot with access from Hayes and Polk Streets. The site is roughly "L-shaped" and covers about 13,400 square feet, with 148 feet of frontage on Hayes Street and 60 feet of frontage on Polk Street. Figure 1 (p. 7) shows the project location.

B. Physical Characteristics and Location

The site is in a C-3-G (Downtown General Commercial) zoning district and a 160-H height and bulk district where the maximum permissible height is 160 feet. In compliance with this zoning, the project building would be 160 feet high, with a maximum length of 148 feet along Hayes Street and a maximum diagonal of 192 feet.

The project would contain about 132,000 gross square feet (gsf) of floor area including 126,000 gsf of offices and 6,000 gsf of ground floor retail. Offices would be on floors 2-11, with about 12,000 gsf per floor. The building would have three pedestrian entrances, one from Polk Street and two from Hayes Street.

Eleven parking spaces would be provided in the 12,600 square foot basement. One parking space would be reserved for a delivery van and another for a vanpool vehicle. Access to basement parking would be from Hayes Street. One delivery vehicle space accessible from Hayes Street would meet the loading requirements under Section 152 of the City Planning Code and the recommendations contained in Resolution #9286, adopted by the City Planning Commission (see p. A-8 of the Initial Study in Appendix A). Its dimensions would be 12 feet x 25 feet with a 14 foot vertical clearance. Figures 2 and 3 (pp. 8, 9) show floor plans for the project and Figures 4 and 5 (p. 10, 11) show building elevations, a cross section and facade detail.

On Polk Street, portions of floors five through eleven would be set back about seven feet from the lower floors. On Hayes Street, floors four through eleven would be set back about 12 feet. Landscaped terraces measuring 140-150 square feet would be on the fourth and fifth floors. The 840-sq. ft. "rear yard" at the southwest corner of the site would be landscaped for use

figure 1 PROJECT LOCATION

source: Planning Analysis & Development

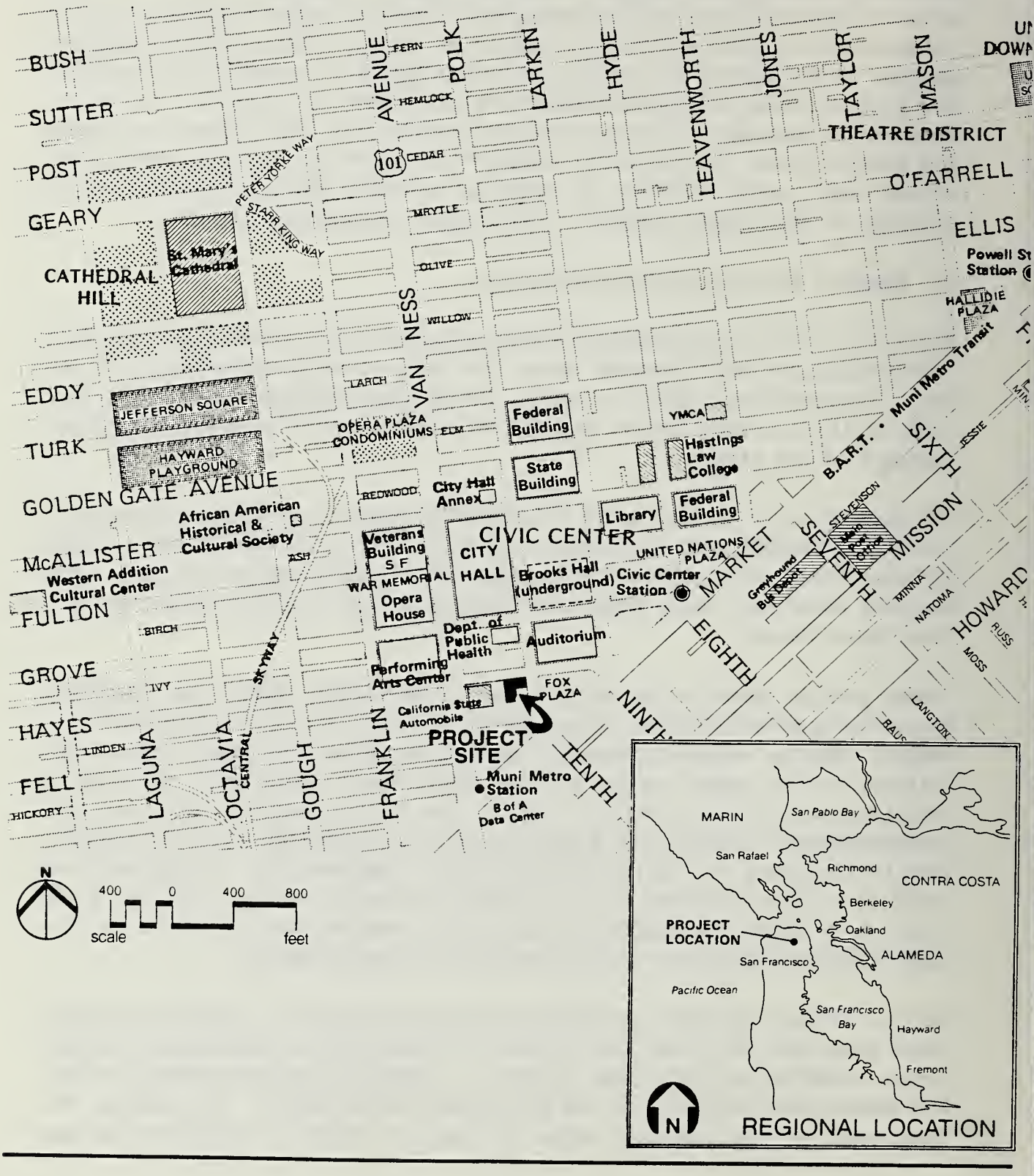
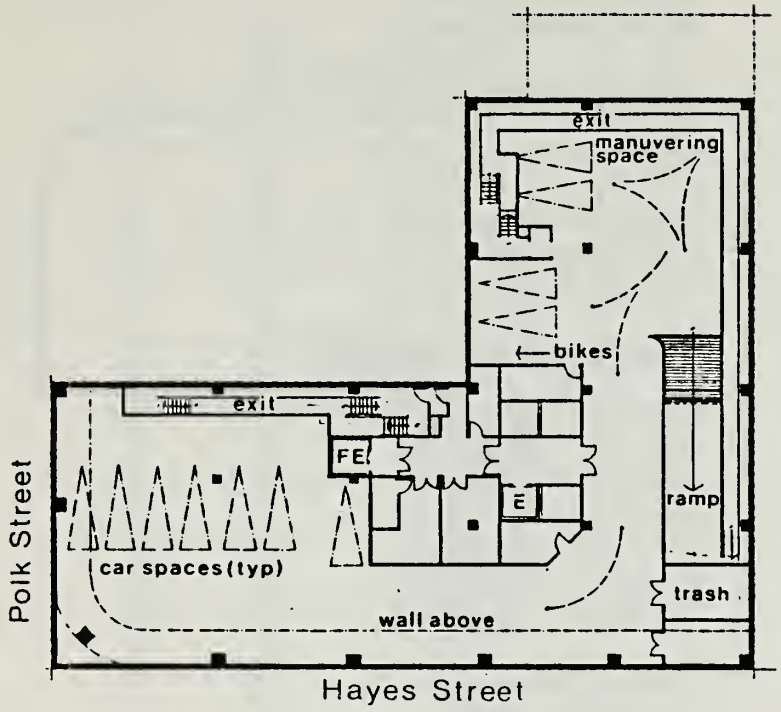


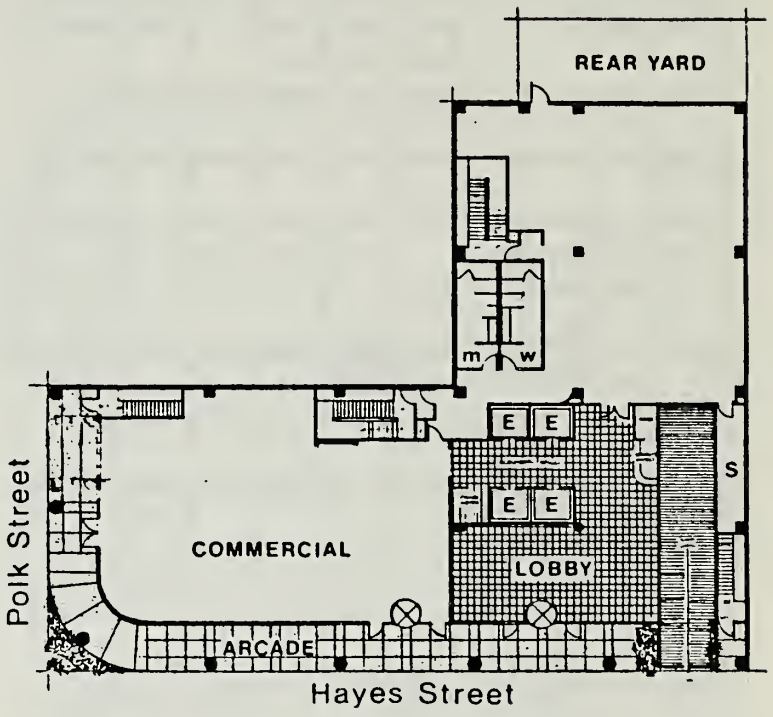
figure 2

source: G/Rescalvo Associates

BUILDING FLOOR PLANS



Garage Sublevel



Entry Level

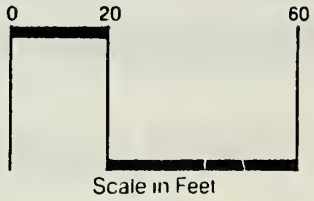
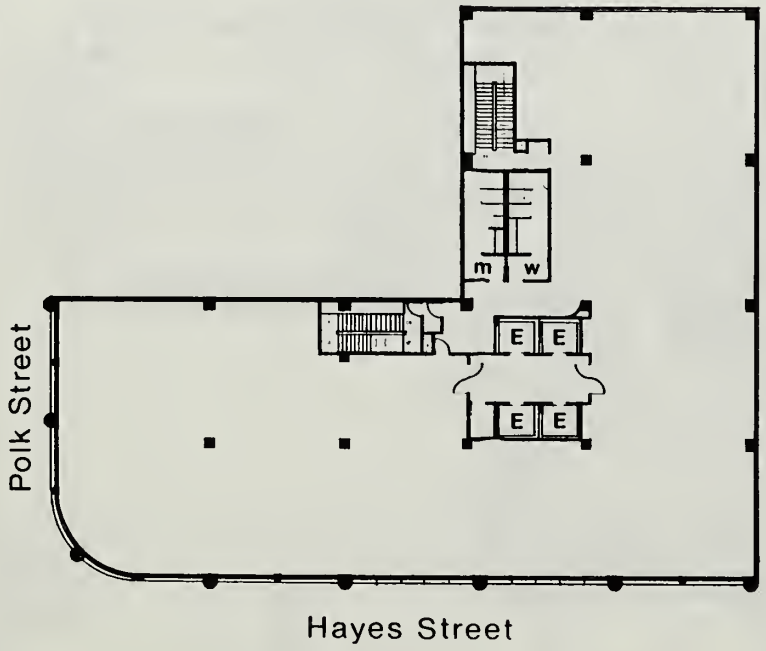


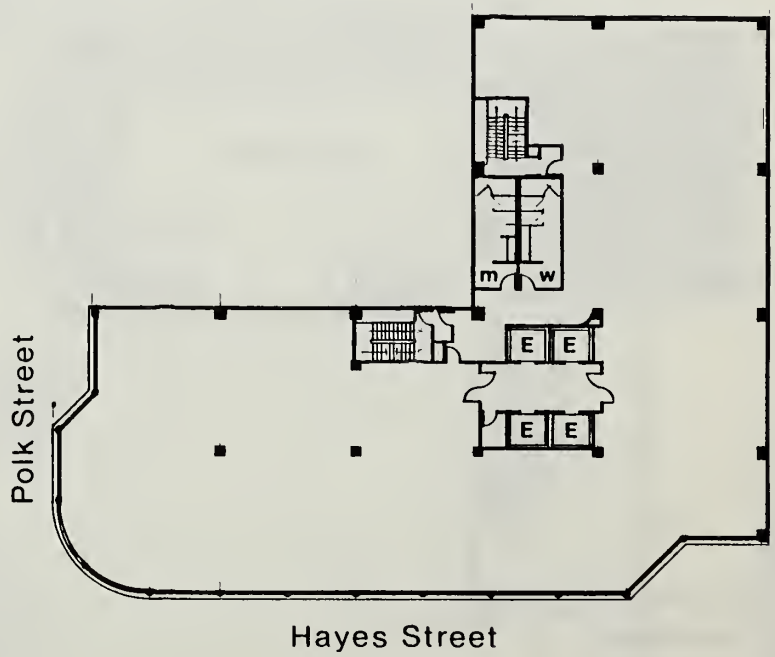
figure 3

source: G/Rescalvo Associates

BUILDING FLOOR PLANS



Second Level



Sixth thru Eleventh Levels

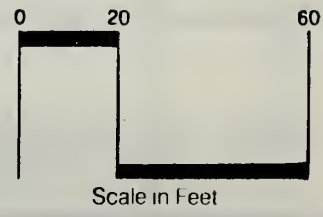
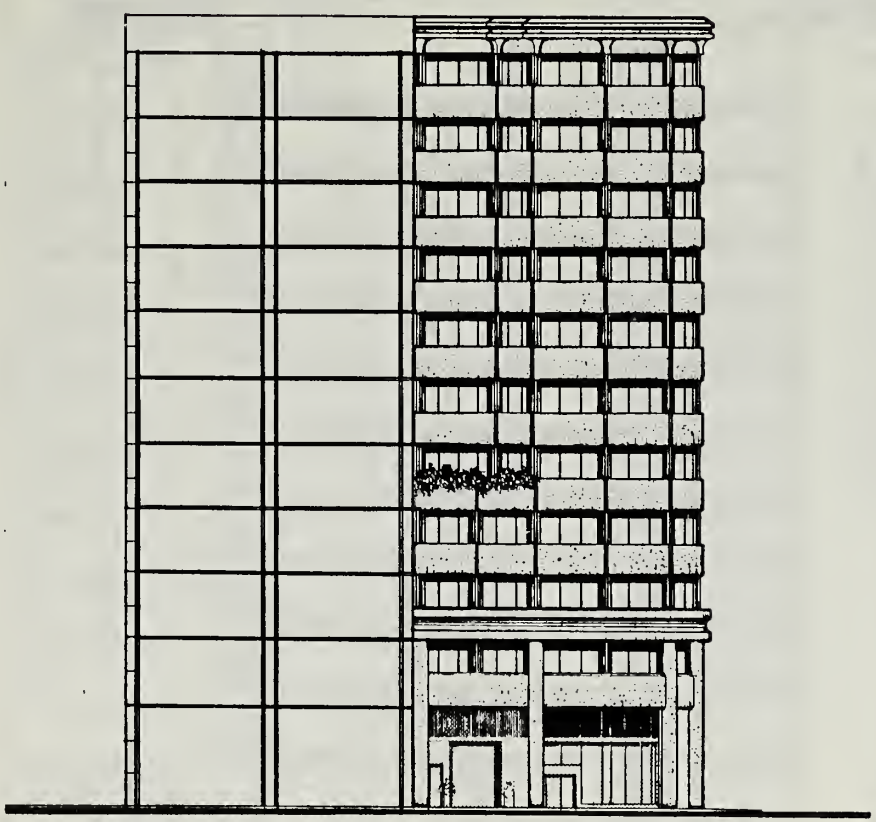


figure 4

source: G/Rescalvo Associates

BUILDING ELEVATIONS



Polk Street Elevation (East)

Hayes Street Elevation (North)

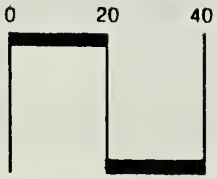
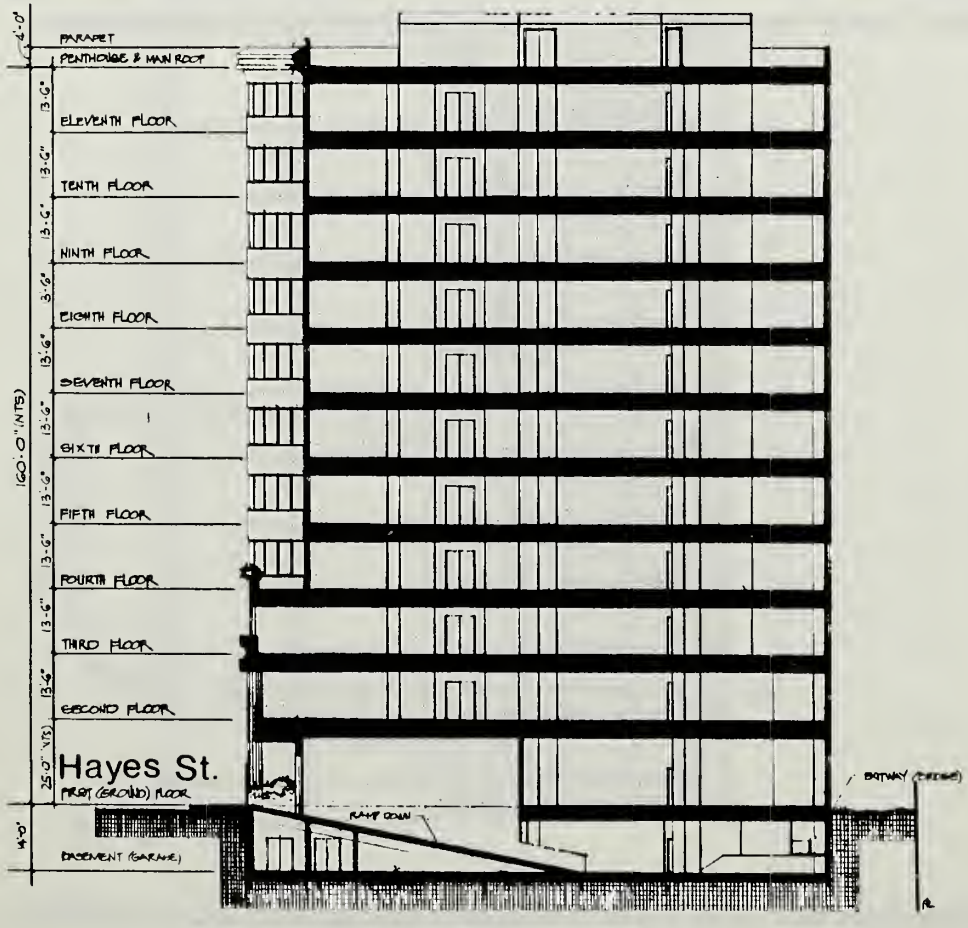


figure 5

source: G/Rescalvo Associates

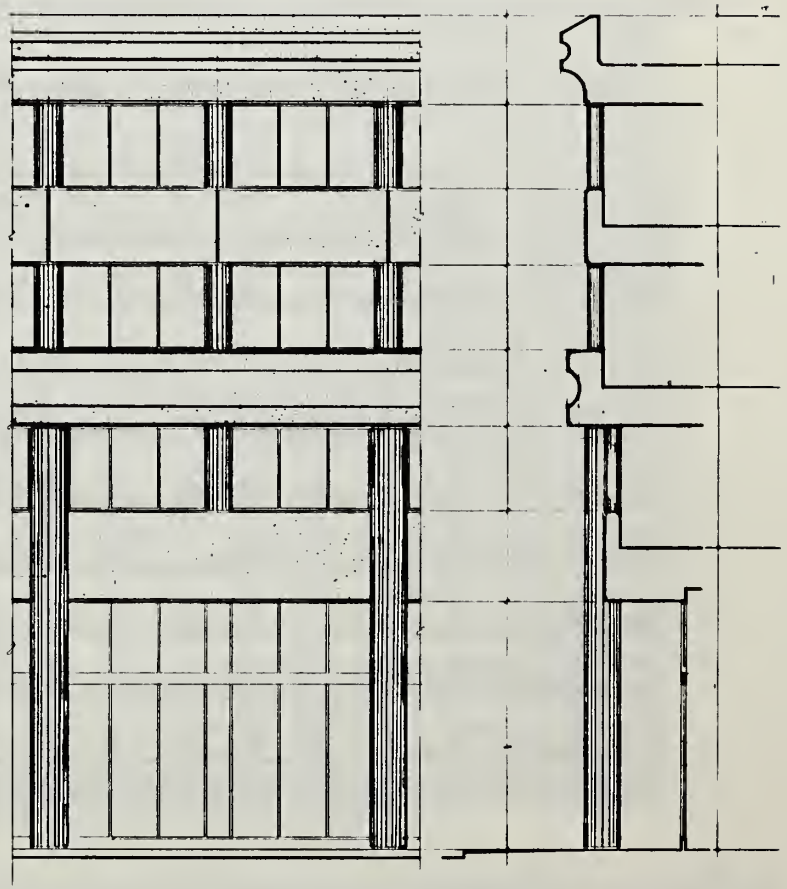
CROSS SECTION AND FACADE DETAIL



0 20 40

scale in feet

North-South Cross Section
(Viewed from West)



Typical Facade Detail

0 8 16

scale in feet

by building occupants. A 12-foot wide pedestrian arcade would curve around the building at ground level, and fronting on both Polk and Hayes Street.

C. Scheduling and Costs

No specific construction dates have been set as the timing of permits and approvals is subject to change. The project sponsor expects work to commence in 1985. The entire construction period would be about 18 months. Construction costs are estimated at $12.22 million in 1984 dollars. The estimated fair market value is estimated at $18 million.

D. Required Project Approvals

The project complies with the provisions of the City Planning Code and therefore requires no conditional use authorization or variances. The City Planning Commission would be responsible for certifying the EIR and considering project approval under Discretionary Review in accordance with Resolution 8474, which pertains to the downtown area.[1] Under its current policy of Discretionary Review of all downtown high-rise buildings during the period of interim controls, the Commission will review the building design and its environmental context, and adopt a resolution approving, approving with conditions, or disapproving the project.[2]

In order to demolish the existing parking lot, the project sponsor would have to obtain a demolition permit from the Central Permit Bureau of the Department of Public Works. The project sponsor would than have to obtain a building permit approved for compliance with fire, electrical, and other City codes, and with conditions established by the City Planning Commission in its discretionary review.

Footnotes

1. Resolution 8474, adopted by the San Francisco Planning Commission, January 17,1980.
2. Interim controls refers to City Planning Commission Resolution No. 8474, January 17, 1980. Board of Supervisors Ordinance 240-80, effective July 1, 1980, and extended to May 7, 1984, by Ordinance 401-83 establishes interim limitations on use of floor area bonuses for offices. This ordinance was subsequently extended to May 1, 1984. Floor area bonus may be granted for residential or hotel uses.

III. ENVIRONMENTAL SETTING

A. Land Use and Zoning

The site is in a C-3-G (Downtown General Commercial) District where offices and retail are allowed as principal uses (Sections 218 and 219 of the City Planning Code). The floor area ratio (FAR) for the site is 10.0 to 1 (Section 124 (a)) which would allow about 134,100 gross square feet (gsf) of floor area. The site is in a 160-H Height and Bulk District in which the maximum allowable height is 160 feet, and bulk over 100 feet of height is limited to 170 feet in length and 200 feet on the diagonal. Figure 6 (p. 14) shows zoning for the site and vicinity.

The mixed-use neighborhood surrounding the site consists of four-story historic Civic Center buildings to the north, up to 29 story high-rise office and residential buildings to the east and west, one to four story commercial and residential buildings to the south, and a surface parking lot directly north across Hayes Street. The three block area north of the site has many government office buildings (e.g., City Hall and the State Building) and public buildings (e.g., the Opera House, the San Francisco Public Library, and the Exposition Auditorium). Civic Center Plaza is one block northeast of the site.

Four new office building projects have been proposed for an area on Market Street located one-third mile northeast of the project site. These include the Mardikian Building, 10 U.N. Plaza, 1145 Market, and Trinity Center. If completed, about 965,000 gross square feet of office space would be added in this area. An additional 84,500 gsf of office space have been proposed for three other office projects within 1000 feet of the project to the south and southwest. These include 300-350 Gough Street, 25 Van Ness Avenue and 291 Tenth Street. These projects are included in the list of cumulative office development in San Francisco (See Table C-2 in Appendix C, pp. A- 46 through A- 49), which was prepared by the San Francisco Department of City Planning on March 10, 1984. The list includes projects which are (1) under formal review by the Department of City Planning; (2) approved but not yet under construction; and (3) under construction. This information is summarized in Table 1.

figure 6

ZONING MAP

source: Planning Analysis & Development with
information provided by San Francisco Planning Code

LEGEND

HOUSE CHARACTER DISTRICTS
RH-1(D) RH-1 RH-1(S) RH-2 RH-3

MIXED HOUSE & APARTMENT CHARACTER DISTRICTS
RM-1 RM-2 RM-3 RM-4

RESIDENTIAL-COMMERCIAL COMBINED DISTRICTS
RC-1 RC-2 RC-3 RC-4

INDUSTRIAL DISTRICTS
M-1 M-2

PUBLIC DISTRICT
P

COMMERCIAL DISTRICTS
C-1 C-2 C-3-O C-3-R C-3-G C-3-S C-M

••••••• BOUNDARIES OF PROPOSED RECLASSIFICATION AREA (Under Review)

Table 1

SUMMARY OF CUMULATIVE OFFICE BUILDING GROWTH

Downtown Office Building Space	Net New Office Space (in millions of sq. ft.)
1. Under formal review	8.721
2. Approved but not under construction	4.760
3. Office projects under construction	5.530
Sum of items 1-3 (rounded)	19.000

Source: San Francisco Department of City Planning, "Cumulative Projects List," March 10, 1984.

Existing office space in San Francisco totals about 56.6 million gsf. About 5.5 million gsf of net new office space is under construction. About 4.7 million gsf of net new office space has been formally approved but is not yet under construction, and an additional 8.7 million gsf of office space is under formal review. Altogether this amounts to about 19 million gsf of net new office space. About 2.4 million gsf of existing office space are proposed to be demolished to clear sites for these new office projects. About 12.8 million gsf of net new office space is proposed for the C-3 District. For the cumulative impact analyses, 19 million gsf of net new space is used, as it refers to the amount of new construction in excess of existing space. The project office space would be 0.6% of this. If all the office development currently under formal review, approved, or under construction were to be built, San Francisco would have a total of about 88 million gsf of office space.

A total of 921,700 gsf of net new retail development is under construction, formally approved, or proposed. About 325,000 gsf of existing retail space are proposed to be demolished to clear sites for new retail development. The retail space included in the project would be 0.6% of the 921,700 gsf of net new retail space.

The total floor area of office buildings on the cumulative list differs from those shown in earlier EIRs as it is based on the status of projects as of March 10, 1984. Some projects included in earlier totals have been removed from the cumulative impact analyses because they have been withdrawn from formal review or for other reasons of inactivity. Other projects were recently added to the list because they have been activated. The list of projects used for the cumulative analyses in this report represent the current official record of office buildings completed, in progress, or in the review process.

Projections for alternatives as shown in Table VII.B. of the Downtown Plan EIR (EE81.3, published March 16, 1984) for the C-3 district indicate the C-3 district would contain a total of about 70.5 million gross square feet of office space in 1990 and between 77.5 and 86.5 million gross square feet of office space in 2000, an increase of 15.4 to 24.4 million square feet over existing levels of 62.1 million square feet. The Downtown Plan would result in an increase of about 16.8 million square feet. These projections considered land availability, location preferences, market conditions and economic trends as independent variables, plus various zoning and planning policies of the Downtown Plan and the five alternatives analyzed in the Downtown Plan DEIR. The forecasts in the Downtown Plan DEIR are of space expected to be built and occupied in the C-3 District between 1984 and 2000.

The Downtown Plan: The Downtown Plan contains a number of regulatory proposals for managing development in the downtown area. In general the Downtown Plan proposes to push the boundary of the C-3-0 district south to Folsom Street and redirect downtown office expansion south of Market Street. Under this plan the maximum basic allowable FAR for the site would be reduced from 10:1 to 6:1 with an ability to increase the FAR by use of a transfer of development rights. At an effective FAR of 10:1 the project as currently designed would not be permitted under the Downtown Plan without a transfer of development rights. The new height limit would be 120 feet. The bulk designation under the Downtown Plan for this site would be X, which permits 100% lot coverage up to the height limit. Table 13 (p. 95), outlines the relationship of the project to The Downtown Plan. An alternative design that would comply with all the provisions of the Downtown Plan is presented in the chapter on Alternatives (p. 94).

B. Visual Quality and Urban Design

The project site is now occupied by a surface parking lot that is surrounded by buildings of diverse styles. (See Figure 7, p. 18) The Civic Center, one block north of the project, is a proposed City historic district (City Planning Commission Resolution No. 7807, October 6, 1979) which includes public buildings of the Beaux Arts Classical architectural style.[1] City Hall, the State Building, San Francisco Public Library, the Federal Office Building, the Exposition Auditorium, and the Department of Public Health are part of the Civic Center complex. Within three blocks of the site are five buildings rated "A" (Highest Importance) or "B" (Major Importance) in terms of architectural and historical significance. These buildings appear to be eligible for the National Register of Historic Places.[2] In addition, 23 buildings are rated "C" (Contextual Importance) in this same three block radius. The four-story apartment building adjacent to the project site on Polk Street is rated "C". This brick building was built in 1917.[3]

The dome of City Hall is a visually prominent architectural element of the Civic Center complex which can be seen from many vantage points within San Francisco. It is visible from the intersection of Market and Polk Streets just south of the project site. The dome forms the backdrop to low-rise buildings and the project site. This view is framed by the Fox Plaza Building to the east and 100 Van Ness Avenue Building to the west. (See Figure 7, p. 18) For pedestrians walking west on Market Street, the view of the dome is obstructed by the Fox Plaza tower until one reaches the east sides of this intersection.

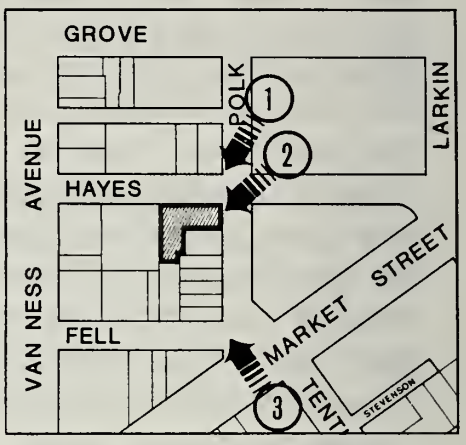
Most of the public buildings around Civic Center Plaza range in height from 35 to 85 feet and have grey stone exteriors broken up by architectural elements such as narrow balconies, defined bases, decorative windows, horizontal banding, strong cornices and pillars.

To the west, east and south, the project site is surrounded by modern highrises which include the 29-story Fox Plaza, the 29-story 100 Van Ness buildings and the 21-story Bank of America Data Center. These buildings are within 700 feet of the project site and 1,600 feet of Civic Center Plaza; they contrast in style and height to the nearby Civic Center buildings. Fox Plaza and 100 Van Ness are rectangular buildings with a north/south orientation and flat, planar facades of concrete and glass. The Bank of America Data Center, as seen from Civic Center Plaza, is dominated by solid white concrete and horizontal windows. When viewed from the west end of Civic Center Plaza, these three highrises form the backdrop to the Department of Public Health and Exposition Auditorium buildings. (See Figure 7, p. 18)

figure 7 PHOTOGRAPHS OF THE SITE

source: Planning Analysis & Development

1) FROM CIVIC CENTER PLAZA



Site Vicinity Inset

2) FROM NORTHEAST CORNER, POLK & HAYES

3) FROM MARKET & TENTH

Footnotes

1. The Beaux Arts classical style stems from the Ecole des Beaux Arts which was the national school of fine arts in France at the turn of the century. Designs of the Ecole students typically incorporated such elements as well-spaced classical windows, rusticated masonry, and columns to articulate the facade. The Civic Center is considered to be San Francisco's purest embodiment of the City Beautiful Movement, which was an outgrowth of Beaux-Arts ideas, in this country.
2. The Foundation for San Francisco's Architectural Heritage, "San Francisco Downtown Architectural Survey: C-3 Zoning District," Final Evaluated List, December 1, 1982.
3. Ibid.

C. Wind

Wind conditions are one determinant of pedestrian comfort on sidewalks and in other public areas. During summer months, the wind in San Francisco blows from the northwest, west and southwest 97% of the time. West winds occur about 73% of the time during the five-month summer season (150 days); southwest winds occur about 13.5% of the time; northwest winds occur about 10.5% of the time.[1] The mean wind speed is 8.0 miles per hour (mph) during the "summer regime" (May through September) and 4.8 mph during the "winter regime" (November through March). During transition months, the mean windspeed is 6.0 mph. Average wind speeds are highest in mid-afternoon and lowest in early morning hours.

Portions of the pedestrian areas near the site already exceed the accepted pedestrian comfort criterion of 11 mph for all three wind directions. At an average windspeed of 11 mph, pedestrian comfort is affected by wind-blown dust, blown hair, flapping clothes, and interference with contact lenses.[2] The Fox Plaza Building, directly east of the site at the southeast corner of Polk and Hayes Streets, exerts a strong influence on wind in the area, particularly on Hayes Street. The site is partially sheltered from westerly winds by a six-story structure at the Van Ness/Hayes intersection.[3]

In addition to a comfort criteria, wind conditions can be evaluated in terms of a hazard criterion. The occurrence of 35 mph winds for 5% of the time is considered a threshold for pedestrian hazard winds[4], as windspeeds of 35 mph could unbalance an elderly pedestrian. Such winds are infrequent in San Francisco. This hazard criterion is not exceeded at the project site.

Footnotes

1. Ballanti, Donald, Certified Consulting Meteorologist, "Microclimate Impact Study, 101 Hayes Street", January, 1983, p. 6. This report is included in Appendix B, pp. A-30 - A-40.
2. Arens, E. and Ballanti, D., "Outdoor Comfort of Pedestrians in Cities", Proceedings of the Conference on the Metropolitan Physical Environment, Syracuse, New York, August 1975.
3. Ballanti, D., op.cit., p.3.
4. The mean windspeed corresponding to a 5% frequency of winds greater than 35 mph is different for each wind direction because the distribution of windspeed varies with wind direction. The corresponding mean windspeeds that, if exceeded, would probably result in winds greater than 35 mph on more than 5% of the summer afternoons are shown below. Northwest wind direction: Hazard Criterion = 24.2 mph; West wind direction: Hazard Criterion = 24.2 mph; Southwest wind direction: Hazard Criterion = 26.9 mph. (Ballanti, D., op. cit., p. 3.)

D. Employment, Housing and Fiscal Factors

Existing Employment: Current activities on the site generate no full-time employment. The existing parking lot is operated without a full-time attendant; patrons deposit money in the fee box at the entrance to the lot.

According to a report prepared by the Association of Bay Area Governments (ABAG), the total number of office employees in the San Francisco Bay Area increased from 862,900 to 1,153,900 between 1970 and 1978.[1] About 280,400 (24%) of the total 1978 Bay Area office jobs were located in San Francisco. Of the San Francisco jobs, about 58% (162,600) were local-serving, or responding to demand from within the region. The remaining 42% (117,800) were basic activities which were responding to demand from outside the region and bringing income to San Francisco through the export of goods and services.

San Francisco and Regional Office Space Market: San Francisco is the major office center in the Bay Area with approximately 56.6 million gsf of downtown office space in 1981 and about 62.1 million square feet as of 1984.[2] During the 1970s, downtown office space increased at a rate of about 1.5 million gsf per year. In 1981 and 1982, office space increased more than three million gsf annually. A total of approximately 39.4 million gsf of office space was constructed in San Francisco between 1960 and 1982.

The projects under review, approved or under construction as of March 10, 1984 include projects in the greater downtown area outside of the C-3 District (see Appendix C,p. A-46). An additional 5.5 million gross square feet of net new office space will be added when the buildings under construction are finished, and another 4.8 million square feet of net new office space has been approved but is not yet under construction. Another 8.7 million square feet would be added if the projects under formal review, as of March 10, 1984 were eventually built. This total of about 19.0 million gross square feet of net new office space (under formal review, approved, or under construction as of March 10, 1984) includes the 101 Hayes project, listed as adding about 132,000 gross square feet of net new office space. "Net" includes additional space, subtracting existing space on sites being developed or proposed for development.

Office space projections in the Downtown Plan Draft EIR indicate the C-3 District will contain approximately 70.5 million gsf of office space by 1990, and 78.9 million gsf of office space by 2000.[3] Alternatives analyzed for the Downtown Plan DEIR indicated a range of 77.5 million to 86.5 million gsf of total office space in the C-3 District by 2000.[4] Forecasts in the Downtown Plan DEIR indicate net increases of office space in the downtown of approximately 1.4 million square feet per year between 1984 and 1990.[5]

Vacancy Rates/Commercial Rates: On the basis of a 1983 citywide survey of 290 office buildings, the San Francisco Building and Owners Association (BOMA) reported a citywide vacancy rate of 7.07%. This rate is an increase over the 6.0% rate reported by BOMA in a 1982 survey.[6] According to a September 1984 Coldwell Banker survey, the vacancy rate in downtown San Francisco office buildings (new, existing and major renovations and including the South of Market area) was 9.0%[7]. The 9.0% rate is an increase from 0.1% during June 1981 and 6.1% during June 1983 (earlier Coldwell Banker surveys). The vacancy rate for September 1984 is the highest that has been reported for San Francisco since Coldwell Banker started this survey in 1978. The June 1984 8.6% vacancy rate was the fourth lowest of the 29 major downtown financial districts surveyed by Coldwell Banker. For comparison, as of June 1984 the office vacancy rate was 13.5% nationally; 10.8% in Chicago; 6.5% in downtown Manhattan; and 16.2% in Dallas, and 9.1% in San Jose.[8]

The BOMA and Coldwell Banker vacancy rates are not directly comparable, as each survey includes different types and numbers of office buildings. However both surveys indicate an increase in the downtown office vacancy rate in the period discussed above. This increase may be attributable to several factors such as the national economic recession, new office space recently completed,

and the migration of several large office building tenants out of the City. Demand for office space elsewhere in the Bay Area has been growing. Some businesses have moved clerical, administrative, and noncorporate functions to outlying areas while maintaining headquarters and main branch offices in San Francisco. Oakland, the City of San Mateo, and cities in Contra Costa county are experiencing increased demand from new businesses and those relocating from San Francisco. For example, approximately 17.0 million square feet of office space is proposed or under construction in San Mateo county[9], and 6.0 million gsf of office space in nine new buildings are currently proposed for construction in the City of Oakland over the next ten years.[10] However, the downtown Oakland office vacancy rate in late 1982 was 10.1%, or 6.5% higher than that reported for San Francisco in the same survey.[11]

Annual rents for commercial office space in the San Francisco Financial District have almost tripled in the last decade (from $8.50 per sq. ft. in 1970 to $23.00 per sq. ft. in 1980).[12] New office space leased for $28 to $42 per sq. ft. annually in 1982, compared with $11 to $14 per sq. ft. in 1977.[13] New South of Market office space will rent for about $25 to $38 per square foot; Civic Center office space rents for about $18 to $26 per square foot; San Francisco rents of $28 to $42 per square foot are now about 6% higher than commercial rents in Oakland ($18 to $27 per square foot), the Peninsula ($18 to $27 per square foot), and Contra Costa County ($16 to $26 per square foot).[14]

Housing: San Francisco housing is characterized by low vacancy rates, low growth rates, and high purchase and rental costs in relation to typical worker earnings. These factors, combined with high mortgage interest rates, have constrained the supply and affordability of San Francisco housing.

The 1980 Census reports a vacancy rate of 0.6% and a 1980 median value of $104,600 for single-family units in San Francisco.[15] The 1980 median price asked for a single-family unit was $120,400 in San Francisco and $118,100 in the San Francisco/Oakland SMSA.[16] 1981 sales listings indicate that the median price of all homes (including condominiums and duplexes) sold in San Francisco was $151,203. The lowest price was $95,000 and the highest price was $236,750.[17] In 1984, the median sales price for a previously owned single-family house in the Bay Area was about $132,696.[18]

San Francisco had about 316,000 housing units as of the end of 1980, of which two-thirds were rented and one-third was owner-occupied.[19] The number of new single- and multiple-housing units authorized by building permits in San Francisco decreased 34.4% between 1979 and 1980.[20]

In 1980, the median rent of renter-occupied housing units in San Francisco was $267; this would equal approximately $330 in 1983 dollars.[21] According to 1980 Census data, the vacancy rate was 2.68%, a decrease of 0.42% from 1970 vacancy rates.[22]

Property Tax Revenues & Municipal Costs: The site has a 1983-84 full cash value of about $952,931.[23] Based on the 1983-84 tax rate of $1.15 per $100 of assessed valuation, the site will yield approximately $10,960 in property tax revenues this fiscal year.[24] Eighty-five percent, or $9,337, will be distributed to the City and County of San Francisco; about $811 to the San Francisco Unified School District; $135 to San Francisco Community College; $20 to the Bay Area Air Quality Management District; and $658 to BART.

The City incurs costs in providing services for the site. Police, fire and general government expenditures are supported primarily by the General Fund. Most street maintenance, street improvements, and traffic control costs are supported by other revenue sources such as fees, fines, and federal and state aid.

Footnotes

1. Association of Bay Area Governments (ABAG), San Francisco Bay Area Economic Profile, December 1979, pp. 39-44.
2. San Francisco Department of City Planning, Downtown Plan DEIR, EE.81.3, March 16, 1984, pp. IV.B.2 and IV.B.17.
3. Downtown Plan DEIR, pp. IV.B.28 and IV.B.31.
4. Downtown Plan DEIR, Appendices, pp. G.37 - G.41.
5. Op. cit.
6. Elmer Johnson, Building Owners and Manager Association, telephone conversation, February 21, 1984.
7. San Francisco Chronicle, September 27, 1984.
8. Coldwell Banker, "Office Building Real Estate Data, 1984". San Francisco is one of 24 major downtown districts surveyed quarterly throughout the nation.
9. Proposed Specific Plan: Bayshore Office Park and Baylands Development Area, Brisbane, California, July 1982, and Metropolitan Transportation Commission, Travel Impacts of Proposed Development on the Peninsula Along Route 101, September 9, 1982.
10. City of Oakland, Department of City Planning, "Major Buildings in the Central District," January 26, 1982.
11. Coldwell Banker, "The Commercial Real Estate Market in the S.F. Bay Area", Dec. 1982, p. 10.
12. Department of City Planning, Memorandum to the City Planning Commission, "South of Market Interim Controls," January 26, 1982.

13. Coldwell Banker, op. cit., p. 10.
14. Ibid.

15. Department of City Planning, "1980 Census Information", File STF 1A.
16. U.S. Department of Commerce, 1980 Census of Housing Data Index, Vol. 1, Chapter A, General Housing Characteristics, Part 6, California, August 1982.
17. San Francisco Board of Realtors, "Multiple Sales Service," October 5, 1981 (Annual data on housing sales prices including all homes sold from February 11, 1981 to October 1, 1981).
18. California Association of Realtors, "Real Estate Trends", June 1984. The San Francisco Real Estate Board does not provide specific information for San Francisco.
19. Department of City Planning, Tape File 3A op. cit.
20. Real Estate Research Council of Northern California, Northern California Real Estate Report, vol. 33, No. 1, April 1981.
21. 1980 Census Area Profile, Ibid. Escalation to 1983 dollars is based on a 24.3% rise in the Consumer Price Index.
22. Dean Macris, Director of Planning, Department of City Planning, Memorandum entitled "Vacancy Rates," February 24, 1982.
23. San Francisco's Tax Assessor's Office, David Dilg, Deputy Tax Collector, telephone communication of November 14, 1983.
24. Of the total tax, $9,530 represents the maximum allowable under Proposition 13 for general government expenditures ($1.00 for every $100 of assessed valuation), and $1,430 was levied to finance bond obligations previously approved by the electorate ($0.15% of assessed valuation).

E. Transportation

The site is located on the southwest corner of the intersection of Hayes and Polk. Hayes is one-way westbound at the project site; Polk is one-way southbound at the project site. Hayes Street has three westbound travel lanes (each about 10 feet wide) and two additional parking lanes which become travel lanes between 4:00-6:00 PM. Polk Street has three southbound lanes (each 11 feet 9 inches wide) with two parking lanes. Market Street is one block south of the site. U.S. Highway 101 (Van Ness Avenue) is one block west of the site and provides access to the Golden Gate Bridge. The closest freeway access to the East Bay and Peninsula is six blocks southwest of the site at the Oak Street on-ramp to U.S. 101 southbound and Interstate 80 eastbound. Freeway access is also provided at Tenth & Bryant and Eighth & Bryant.

Primary vehicular streets in the site vicinity, as designated by the Transportation Element of the Comprehensive Plan, (amended June 24, 1982) include Van Ness, Hayes, Fell, Ninth, Tenth, and Golden Gate (p. 47).

Transit preferential streets, according to the plan, include Market, Van Ness, McAllister, and Golden Gate (p. 17). The bicycle plan of the Transportation Element designates Fulton Street (two blocks north of the site) and Octavia (four blocks west of the site) as signed bikeways (p. 35) and Polk, Market, Octavia, Grove, and Larkin as preferred commute bike routes (p. 37). Market Street is designated a pedestrian oriented street according to the downtown transportation plan of the Transportation Element (p. 47). The Center City Circulation Program has proposed that a contraflow transit lane[1] be installed on Hayes Street by eliminating one westbound traffic lane to allow eastbound bus traffic.

Local and regional transit are easily accessible as the project site is centrally located. Along the Market Street corridor, the frequency of peak hour Muni service is about one vehicle every 25 seconds; on the Hayes/Grove corridor, frequency is about one vehicle per two and a half minutes.[2]

Twenty-five Muni lines stop within three blocks (2,000 ft.) of the site. There is a Muni station at Van Ness and Market, two blocks from the site. BART stops two blocks east of the site at the Civic Center. Commuter bus service is provided from the Greyhound Bus Depot, three blocks east of the site, from the Transbay Terminal, 17 blocks east of the site, and from the Southern Pacific Depot, 13 blocks southeast of the site.

Of the 25 Muni lines stopping within 2,000 feet of the site, five are Metro lines and 20 are motor and trolley coach lines. Eight of the coach lines are proposed to be either discontinued, re-routed out of the project area, or combined with other routes in accordance with Muni's Five Year Plan.[3]

Existing pedestrian use of the site is primarily generated by those parking in the lot, although some pedestrians were observed to use the site as a short cut to various destinations. Pedestrian use of sidewalks at the site is heaviest during the noontime hours as workers walk to lunch. Official and actual sidewalk widths are 10 feet on Polk Street and 12 feet on Hayes Street. The effective sidewalk width is 6 feet and 7 inches on Polk and 5 feet and 2 inches on Hayes.[4] There is an 8-foot 2-inch crosswalk on Hayes adjacent to the site and a 10-foot 7-inch crosswalk on Polk.

Parking

The site is currently occupied by a 64-space Ampco parking lot. All-day parking at the site costs $4.25; evening and weekend parking costs $2.00. Seven of the spaces are reserved for the use of an adjacent apartment building. This lot is generally full by 9:30 AM and does not experience an appreciable turnover of vehicles until after 5:00 PM. Daytime users of the

lot are office workers in the area or attendees of conventions at the Civic Auditorium. Most evening use of the lot is by audiences attending performing arts events in the Civic Center.[12]

Directly north of the site across Hayes Street is a Metro Park lot which provides valet parking for 100 vehicles. An off-street parking garage is located at the southwest corner of Van Ness & Fell with 105 spaces available onan hourly or monthly basis. Most on-street parking in the site vicinity is controlled by one-hour meters. No parking is allowed on Hayes Street adjacent to the site between 4:00 and 6:00 PM.

A survey of parking conditions within 2,000 feet of the site was conducted by PRC Voorhees in September 1982. (Refer to material on file with the San Francisco Planning Department.) Mid-afternoon occupancy of on-street, one-hour spaces was about 83%. Occupancy of 2,570 off-street parking spaces in the area is about 81%. On some streets, frequent illegal parking occurs. Although alleys and minor streets in the area are posted "No Parking" on one or both sides, several are fully lined with parked cars. In addition, red and yellow-curbed zones are often used for short periods by unauthorized vehicle vehicles.

Long-term parking is usually available in the Civic Center Garage (200 spaces) at McAllister between Polk and Larkin, and the Fox Plaza Garage (60 spaces) at Hayes between Polk and Larkin. Both facilities are within walking distance of the site. Recently constructed parking garages include facilities at Opera Plaza (650 spaces) and the Performing Arts Center garage (600 spaces). Of the Opera Plaza garage spaces, about 400 are reserved for residents and up to 115 spaces are available to commercial tenants and customers. During weekdays, about 75 spaces are available for short-term use by the general public. After 6 PM, up to 250 are available for short-term use.[5]

Footnotes

1. Contraflow lanes are travel lanes in which the normal direction of traffic is reversed in order to allow transit carriers to travel a more efficient route. Contraflow lanes are restricted to use by transit carriers.
2. Service planned under the Muni 5-Year Plan currently being implemented. San Francisco Municipal Railway, 5-Year Plan 1981-1986, May 15, 1981, pp. 2-248 to 2-252.
3. San Francisco Municipal Railway, op. cit., and 5-Year Plan 1982-1987, Volume 3, August, 1982.

4. Effective sidewalk width refers to sidewalk width adjusted for obstacles, dead space or buffers along both sides of a walkway, as defined in: Transportation Research Board, Circular 212, Interim Materials on Highway Capacity, January 1980, pp. 119-121.
5. PRC Voorhees, "Traffic Report for 101 Hayes," on file with the City Planning Department.

F. Air Quality

The nine-county San Francisco Bay Area Air Basin is designated by the California Air Resources Board (CARB) as a nonattainment area for ozone, carbon monoxide (CO) and total suspended particulates (TSP).[1] To fulfill the requirements of the Federal Clean Air Act Amendments of 1977, a regional Air Quality Plan has been adopted which establishes control strategies to attain and maintain air quality standards by 1987.[2] These strategies include stationary and mobile source emission controls and transportation-related policies and control measures.

The Bay Area Air Quality Management District (BAAQMD) operates an air quality monitoring station approximately two miles from the site at 900 23rd Street. Before 1980, the air quality monitoring station was located about one-half mile from the site at 939 Ellis Street. Table 2 (p. 29) shows air quality for 1979-1982. These data show occasional excesses of the most stringent CO, TSP, and nitrogen dioxide standards. In 1983, there was one exceedence of the state one-hour average ozone standard and four exceedences of the state 24-hour average TSP standard.

San Francisco's air quality is generally the least degraded of all the developed portions of the Bay Area because of the prevailing westerly and northwesterly winds. San Francisco is a generator of its own air quality problems (especially CO and TSP) and a contributor to air quality problems in other parts of the Bay Area (especially ozone), rather than a recipient of pollutants from elsewhere. CO and TSP concentrations are highest at the source and decrease as these pollutants are dispersed by wind. Ozone, on the other hand, is a secondary pollutant formed in the atmosphere by a complex series of photochemical reactions involving emitted hydrocarbons and nitrogen oxides. Ozone air pollution is thus a regional phenomenon because the precursor pollutants are carried downwind as the reaction process takes place.

A special monitoring program, called a Hotspot program, was conducted at 100 Harrison Street during the winter of 1980-81, approximately two-thirds of a mile southeast of the proposed project. The observed high eight-hour average

concentration was 7.8 parts per million (ppm), which is 1.2 ppm less than the applicable air quality standard of 9 ppm.[3] The highest 1-hour average concentration was 13 ppm, which is 7 ppm lower than the applicable state standard. In 1982, a street level average CO maximum of 14.5 ppm was measured at the street level monitoring station at 939 Ellis Street near Van Ness Avenue about a mile and one-half west-northwest of the proposed project. This data indicates that some locations in San Francisco, particularly those near high traffic volumes and congested traffic flow, may experience violations of CO standards under adverse meteorological conditions.

Footnotes

1. Association of Bay Area Governments (ABAG), Bay Area Air Quality Management District (BAAQMD), and Metropolitan Transportation Commission (MTC), 1982 Bay Area Air Quality Plan, San Francisco Bay Area, December 1982, p. 33.
2. Ibid.
3. Association of Bay Area Governments, AQMP Tech Memo 40, "Results of the 1980/1981 Hotspot Monitoring Program for Carbon Monoxide," Berkeley, California, January 1982.

Table 2

SAN FRANCISCO AIR POLLUTANT SUMMARY, 1979-1982

POLLUTANT	STANDARD	1979	1980*	1981	1982
Ozone (O_3) (Oxidant)					
1-hour concentration (ppm[a])					
Highest hourly average	0.10[d], 0.12[b,c]	0.08	0.09	0.07	0.08
Number of standard excesses		0	0	0	0
Expected Annual Excess[c]		0	0	0	0
Carbon Monoxide (CO)					
1-hour concentration (ppm)					
Highest hourly average	35[b], 20[d]	20	10	8	-
Number of standard excesses		0	0	0	-
8-hour concentration (ppm)					
Highest 8-hour average	9[b]	13.8	7.5	5.3	9.1
Number of standard excesses		2	0	0	1
Nitrogen dioxide (NO_2)					
1-hour concentration (ppm)					
Highest hourly average	0.25[d]	0.16	0.17	0.11	0.13
Number of standard excesses		4	0	0	0
Sulfur dioxide (SO_2)					
24-hour concentration (ppm)					
Highest 24-hour average	0.05[d]	0.034	0.018	0.016	0.012
Number of standard excesses[e,f]		0	0	0	0
Total suspended particulate (TSP)					
24-hour concentration (ug/m^3)[g]					
Highest 24-hour average	100[d]	117	173	103	106
Number of standard excesses[f]		1	6	1	3
Annual concentration (ug/m^3)					
Annual Geometric Mean	60[d]	42	52	56	57
Annual standard excess		-	-	-	-

*In January 1980, all of the pollutant-monitoring functions of the 939 Ellis Street Station were transferred to the 900 23rd Street Station.

Footnotes to Table 2 are on the following page.

Table Notes

a. ppm: parts per million.
b. National standard, not to be exceeded more than once per year (except annual standards which are not to be exceeded).
c. The national ozone standard was revised from 0.08 ppm to 0.12 ppm in January 1979. Expected Annual Excess is a three-year average of annual excesses of the new 0.12 ppm standard.
d. California standard, not to be equalled or exceeded.
e. The sulfur dioxide standard is considered to be exceeded only if there is a concurrent excess of the state ozone or suspended particulate standards at the same station. Otherwise, the national standard of 0.14 ppm applies.
f. Number of observed excess days (measurements taken once every six days).
g. ug/m^3: micrograms per cubic meter.

Source: BAAQMD, 1979-1982, Contaminant and Weather Summaries, Air Pollution in the Bay Area by Station and Contaminant.

IV. ENVIRONMENTAL IMPACTS

Issues Not Addressed in this EIR

An Initial Study for the proposed project was published by the Department of City Planning on July 28, 1982. Those issues considered not to have significant environmental impacts were land use, visual impacts related to shading, project-generated transportation and air quality, noise, utilities and public services, biology, land, water, energy/natural resources, cultural resources and hazards. The Initial Study is included herein, as Appendix A (pp. A-3 through A-28). The impacts discussed below include visual quality and urban design, wind, employment, housing and fiscal factors, cumulative transportation, cumulative air quality, and growth inducement. Project-generated transportation and air quality impacts are included for informational purposes and provide a preface to the cumulative analysis.

Not all of the impacts discussed in this section are physical environmental effects as defined by the California Environmental Quality Act (CEQA). Such impacts are included here for information purposes only.

A. Visual Quality and Urban Design Impacts

Plans and Policies: A number of policies in the Urban Design Element of the San Francisco Comprehensive Plan are applicable to the project's visual quality and urban design impacts. The relationship between the proposed project and these policies are discussed in Table 3, (pp. 32 - 33).

Urban Design and Views: The project would replace an asphalt parking lot with a modern L-shaped 11-story building. A ground level pedestrian arcade along both Hayes Street and Polk Street would provide protection for pedestrians during inclement weather. Clear window glazing on the inside wall of the arcade would enable pedestrians to view interior commercial areas.

The building exterior would be a series of horizontal alternating bands of white precast concrete and glass, accentuated by narrow vertical mullions[1] and cornice lines at both the roof and second floor levels. A two-story building base would be created by design elements such as the precast concrete cornice at the top of this base (see Cross Section and Facade Detail, Figure 5, p. 11) and the large round columns (three foot diameter) below this cornice line. These columns would form the outer "street-side" edge of the pedestrian arcade and would be spaced approximately 25 feet apart. Above

Table 3

Relationship of the Proposed Project to the Urban Design Element

1. Recognize that buildings, when seen together, produce a total effect that characterizes the City and its districts. (p. 10)	1. The project's facade and window treatment would be similar to nearby modern highrises due to strong horizontal lines and the use of precast concrete panels. Cornice lines, round columns, and reveals proposed for the project would correspond to elements of other Civic Center buildings.
2. Make centers of activity more prominent through design of street features and by other means. (p. 12)	2. The proposed pedestrian arcade would provide a design element of human scale and interest, adjacent to ground floor retail establishments.
3. Respect the character of older development nearby in the design of new buildings. (p. 25)	3. When viewed from Civic Center Plaza, the height, form, texture, and color of the proposed building would form a neutral backdrop to the Beaux Arts Department of Public Health and Exposition Auditorium buildings. However, the spandrels which accentuate the horizontal would contrast with nearby older buildings.
4. Promote harmony in the visual relationships and transitions between new and older buildings. (p. 36)	4. The project would provide a visual transition between older low-rise buildings and new highrises in the project vicinity due to its 11-story height. The design would be more similar to nearby modern buildings than to older Civic Center buildings due to its color and spandrels. The incorporation of cornice lines and reveals would be similar to elements of the Civic Center buildings.

Table 3 (continued)

5. Avoid extreme contrasts in color, shape and other characteristics which will cause new buildings to stand out in excess of their public importance. (p. 36)	5. The project's light concrete facade would be in keeping with both nearby highrises and older public buildings. The rounded corner at the Hayes/Polk intersection is similar to the Davies Symphony Hall, but dissimilar to other nearby buildings, when the project is viewed from Civic Center Plaza.
6. Relate the height of buildings to important attributes of the City pattern and to the height and character of existing development. (p. 36)	6. The project would be eight stories higher than nearby Civic Center buildings and 17 stories lower than nearby highrises. This height variation occurs in a four block area near the southwest corner of Civic Center Plaza. The project's facade and horizontal window design are similar to the nearby Bank of America data center, but more modern than the Beaux Arts buildings in the Civic Center.
7. Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction. (p. 37)	7. The building's bulk would not be greater than Civic Center buildings, but the height would be greater. The project would not have a dominating appearance, due to the existing 29-story highrises in the vicinity.
8. Improve pedestrian areas by providing human scale and interest. (p. 57)	8. The project would include a pedestrian arcade on both the Hayes Street and Polk Street frontage. Interior ground floor commercial uses would be fully visible to pedestrians using this arcade. No such arcades now exist in the project vicinity.

the second floor, additional vertical elements (mullions) would articulate the facade. At the roofline, these mullions would "fan" open where they meet the precast concrete cornice.

The rooftop cornice would form a building "cap" which would help to integrate the building with the nearby Beaux Arts style buildings in the Civic Center. The building's main entrances on Hayes Street would repeat the curved pattern of the rooftop cornice. The precast concrete panel above these two entrances would be cut away to form rounded "steps" to demarcate the entrances. (See Hayes Street Elevation, Figure 4, p. 10).

The fourth and fifth floor terraces at the northwest and southeast corners of the building would be landscaped and visible from Polk and Hayes Streets. These terraces would mark the beginning of the proposed setbacks as shown in the Artist's Perspective Rendering, Figure 8, (p. 35).

The proposed design responds more to existing modern buildings in the site vicinity than to the Beaux Arts Style of older buildings in the Civic Center. The curved corner of the building (at the intersection of Polk and Hayes Streets) and the white precast concrete panels are similar to Davies Symphony Hall one block west of the project site. The height of the proposed building would be six to nine floors higher than the Civic Center buildings and ten to eighteen floors lower than modern buildings nearby such as Fox Plaza, 100 Van Ness Avenue and the Bank of America buildings (see Figures 9 and 10, p. 36 and 37). The bulk of the building would not be greater than Civic Center buildings.

When viewed at a distance from Civic Center Plaza, the height, form, texture and color of the proposed building would form a neutral backdrop to the Beaux Arts Department of Public Health and Exposition Auditorium buildings. (See Figure 10, p. 37). When seen closer up, however, the modernity of the proposed design would be a noticeable contrast to the Civic Center architectural style due to the horizontal window bands compared to the small rectangular windows of the older buildings, the precast concrete panels compared to the rusticated masonry of the Beaux Arts buildings, and the use of glass to provide a non-structural membrane compared to windows that "puncture" the wall.

From the Market/Polk intersection, the project would block a small portion of the view of City Hall dome (See Figure 11, p. 38). Views of the City Hall dome also would be partially blocked for occupants of the lower floors of the Fox Plaza building. The project would not block views of Civic Center Plaza and adjacent older public buildings for pedestrians and motorists on Hayes or

figure 8

source: G/Rescalvo Associates

ARTIST'S PERSPECTIVE RENDERING

figure 9

source: Planning Analysis & Development

PHOTOMONTAGE
View from the Civic Center Plaza

figure 10

source: Planning Analysis & Development

PHOTOMONTAGE

View from Polk Street
near Civic Center Plaza

figure 11

source: Planning Analysis & Development

PHOTOMONTAGE

View from Market/Polk Intersection

Footnote

1. Mullions are upright division members between windows or doors of a close series.

Shadow Impact: The project was analyzed for potential shadow impacts as defined in Proposition K. The analysis was established as a worst case study. The shadow from the project would in no circumstance be cast on any public park, plaza or open space. Working drawings demonstrating this analysis are on file at the City Planning Department.

B. Wind Impacts

A scale model of the proposed project and surrounding buildings was constructed to measure windspeeds and wind directions generated by the project. Wind tunnel results are shown in Figures B-1 to B-3 in Appendix B, (pp. A-33, A-37 and A-38). Five types of data are shown in these figures: measurement locations, wind direction, the predicted mean windspeed in miles per hour, change in windspeed, and areas where the comfort criterion is exceeded. The following discussion identifies locations where the comfort criterion would be exceeded. The hazard criterion would not be exceeded anywhere near the site.

Northwest Winds: Figure B-1 (p. A-33) illustrates wind tunnel results for the proposed under northwest wind conditions. The project would reduce winds along Hayes Street west of the site, but increase winds near the Hayes/Polk intersection. The proposed project would create winds which exceed the comfort criterion at the south limit of the project along the west side of Polk Street. These winds occur about 10.5% of the time or 16 days in the 150-day "summer" season of May-September. The comfort criterion is currently exceeded along the east side of Polk Street at Market and along Hayes Street at Larkin. This condition is related to the Fox Plaza building, and would not be affected by the project.

West Winds: Figure B-2 (p. A-37) illustrates wind tunnel results for west winds. The project would reduce winds along Hayes Street west and east of the site. Wind increases would occur near the Hayes/Polk intersection adjacent to the site and both north corners of the intersection. Elsewhere along Polk Street, winds would be unchanged or reduced by the project. The project would not increase winds at the locations where the comfort criterion is currently exceeded.

Southwest Winds: Figure B-3 (p. A-38) shows wind tunnel results for southwest winds. At the west end of the project site and south of the site along Polk Street, the project would increase winds. The comfort criterion would not be exceeded at these locations. The comfort criterion is currently exceeded at the south side of the Polk/Hayes intersection. These winds are apparently caused by the Fox Plaza building and would not be affected by the proposed project.

Because prevailing winds are from the west, the outdoor terrace proposed for the east side of the building would be well-sheltered by the building. No windscreen or wind protection would be necessary for comfortable use of the terrace. However, the terrace proposed for the west side of the building would be subjected to strong vertical winds as it would intercept winds deflected downward from the west facade of the building. For maximum useability, particularly during windy summer afternoons, this terrace would need to be protected. Appropriate wind protection measures could include a canopy, trellis, protected seating areas, or enclosure as an atrium space.[1]

Footnote

1. Donald Ballanti, Certified Consulting Meteorologist, personal communication, March 14, 1984.

C. Employment, Housing and Fiscal Impacts

Permanent Employment: The project would increase daytime population density in the area by about 480 persons due to permanent jobs that would be provided at the site. The estimated number of permanent office, retail, and maintenance employees is based on one office employee for 275 square feet of office space[1], one retail employee for 350 square feet of retail space[2], and one maintenance employee for 30,000 square feet of building space.[3]

All of the 480 jobs would be new at the site, as none are currently located there. The existing parking lot is operated without a full-time attendant. The occupations of employees on the project would be in the finance, insurance, and real estate sector (35%), transportation and public utilities sector (21%), and extraction and mining sector (21%). Table 4, (p. 43) shows primary employment by sector.

Construction Employment: Based on a construction cost estimate of $12.2 million[4], with 60% of the cost attributed to labor, 220 workdays per year, wages and benefits of $30 per hour (1982 dollars), and an eight-hour day, the project would provide about 139 person-years of temporary construction employment. Thus there would be about 90 construction jobs for an approximate 18-month construction period.

Multiplier Effects: Each new employee spends income on goods and services; thus, each primary job due to the project would create secondary jobs throughout the region. The size of the multiplier effect in the Bay Area has been estimated in the University of California Input-Output Model. This model shows the effect which growth in one sector of the economy has on all others.

Table 4 also shows the projected secondary Bay Area employment that would be induced by the project if all jobs are assumed to be new jobs. About 445 secondary jobs in the region would result from the multiplier effect of permanent jobs created by the project. Construction jobs would generate about 90 secondary jobs during the 18-month construction period. Secondary employment impacts on San Francisco alone cannot be isolated because the input-output model is based on the Bay Area regional economy.

Citywide Housing Impacts: According to the San Francisco City Planning Commission's "Office/Housing Production Program" (OHPP) formula for computing housing impacts, the project would create a demand for 112 residential units in San Francisco.[5]

An alternative analysis of the relationship between downtown office growth and housing demand in San Francisco was documented in a report prepared by Recht Hausrath and Associates, Economists, which appears as Appendix C, pages 289 through 329, of the 101 Montgomery Street EIR, certified by City Planning Commission Resolution 8941, May 7, 1981. This report is available for public review at the Office of Environmental Review, 450 McAllister Street, fifth floor, and is hereby incorporated by reference into this EIR pursuant to Section 15149 of the California Environmental Quality Act (CEQA) guidelines.

The 101 Montgomery Street Final EIR which found that 15-30% of employees would want to live in San Francisco. Using this analysis, the project would generate demand for about 54-108 residential units in the City if a unit occupancy of 1.4 San Francisco workers is assumed.[6]

Housing Affordability: Based on available data, an approximation of a housing affordability analysis appears in Appendix D, Table D-1, page A-67. Data in the table rely on published sources of office worker incomes (not household income), and prices of housing (without regard to housing availability). Assumptions are made regarding ratio of housing expenses to income, mortgage interest rates and down payments. Analysis based on these data and assumptions indicates that most project employees would not be able to afford housing ownership in San Francisco, although a significant minority, depending on the number of workers per household, would be able to do so. Most project employees, except the lowest-paid clerical employees desiring to live alone, would be able to afford rental housing in San Francisco.

Pursuant to the California Environmental Quality Act (CEQA) guidelines, Section 15149a, discussion of housing affordability for new office workers is incorporated by reference from the Second Street Square Final EIR, 82.591E, certified January 12, 1984 (pages 53 to 55). Briefly, while a survey of occupants of a building comparable to the project would yield some housing affordability data, accurate identification of housing affordability characteristics for persons entering the San Francisco housing market as a result of a new office project is virtually impossible. The problems with making such a determination include: 1) the characteristics and financial resources of persons employed in the newly constructed space cannot be known prior to occupation of the project; 2) persons working in the newly constructed space (in old or newly created jobs) may not be newly employed in San Francisco; and 3) persons newly employed in San Francisco in newly created jobs may not have obtained their jobs as a result of new office development. Even if the number of new employees and their preferences for housing were known, a household's ability to pay for housing depends on a variety of factors in addition to individual income, such as family composition and housing preferences.[7]

Table 4

PROJECTED BAY AREA EMPLOYMENT IMPACTS OF THE PROJECT

Job Sector	Primary Jobs[1]	Secondary Jobs[2] Created by Primary Jobs	Secondary Jobs Created by 18-month Construction Jobs
F.I.R.E.[3]	164	75	12
Transportation and Public Utilities	101	64	10
Agriculture, Mining and Extraction	101	14	1
Manufacturing	53	109	32
Services	39	99	20
Trade (Retail/Restaurant)	23	58	13
Subtotal	481	419	88
Construction[4]	92	26	2
TOTAL	573	445	90

Footnotes

1. Job sector breakdown is based on post-occupancy surveys of 595 and 444 Market Street, conducted by Planning Analysis & Development in July-August, 1981.
2. University of California Extension, Berkeley, San Francisco Bay Area Input-Output Model, 1967 and 1974, July 1978.
3. Finance, Insurance, and Real Estate.
4. Construction jobs would last approximately 18 months.

Source: Planning Analysis & Development

A study conducted by Recht Hausrath and Associates found that the accurate identification of housing affordability characteristics of new office workers in San Francisco is virtually impossible to determine.[8] One problem is that the identity and financial resources of the new workers cannot be known prior to project occupancy. Even if such information were to be obtained, it would not provide a satisfactory basis for estimating housing impacts because persons working in newly-constructed space would not necessarily be newly employed in San Francisco and although some of the jobs would be newly available, most persons obtaining new jobs in the City will have been employed here previously. Also, persons newly employed in San Francisco in new jobs may not have obtained their jobs as a result of new development. Their job may have become available in another building if the project were not built.

Identifying housing affordability for a specific household would require survey information on characteristics such as income, housing preference, current housing costs, household assistance through family networks, tax position, and health. This information would be necessary to obtain an accurate picture of housing needs and desires, and the ability to fulfill them. However, gathering such information would be difficult and respondents would probably be unwilling to provide such personal information as what they currently pay for housing; current housing type, location, and tenure; housing preferences; household demographic characteristics; and household income. This information would provide a description of actual housing behavior and an indication of housing preferences, but would not necessarily provide an accurate description of current housing affordability or what workers could afford as housing market conditions change. Moreover, because the appropriate study population cannot be identified, the representation and applicability of the survey population would be unknown. Thus, the information obtained from such a survey would be a limited indicator of the actual effects of new office construction on housing.

A survey of the project's occupants would be necessary to more precisely determine the regional distribution of housing for project employees. Housing economics and location preference based on commute distance to work, family composition and type of neighborhood are all important variables affecting the project's impact on regional housing. The following information is provided to give a general picture of the relationship of median San Francisco income to rental and homeownership costs.

An affordable housing unit has been assumed as one with a rental expense which does not exceed 30% of the renter's gross monthly income, or one with a homeownership expense (including mortgage principal interest, property tax and insurance, and/or homeownership association dues) which does not exceed

38% of the homeowner's gross monthly income (adjusted for family size).[9] The median rent in San Francisco was $267 in 1980;[10] this would equal about $332 in 1983 dollars.[11] The median price of homes sold in San Francisco in 1981 was $151,203. The lowest price was $95,000 and the highest price was $236,750.[12]

An approximation of a housing affordability analysis appears in Appendix D, Table D-2, (p. A-67). This table lists a range of income levels representative of office workers' salaries, the corresponding maximum affordable housing cost for each income level, and the costs of San Francisco rental and sales units.

The projected regional distribution of housing for San Francisco office employees is contained in Appendix D, Table D-3, p. A-69.

Future Residence Patterns for San Francisco: Employment growth and building development in downtown San Francisco will result in more employees working and living in the City. Over time, more existing residents will take San Francisco jobs and others who take San Francisco jobs will move into the City.

Downtown Plan Forecast As Cumulative Context: Forecasts of residence patterns in the year 2000 were prepared for the Downtown Plan Draft EIR.[13] These forecasts incorporate future housing, labor force, and employment patterns in San Francisco and throughout the region and consider changing demographic, housing market, and transportation factors.

According to the Downtown Plan forecasts, approximately 189,000 C-3 District workers would be living in San Francisco in 2000. This represents an increase of 30,000 residents employed in the C-3 District over the 159,000 estimated for 1984, a 19% increase.[14] Relatively more employed San Franciscans would be employed in the C-3 District. The percentage (employed San Franciscans holding C-3 District jobs) would increase from 45.0 percent in 1984 to 47.5 percent in 2000. Relatively fewer C-3 District jobs would be held by San Franciscans. The percentage (C-3 District jobs held by San Franciscans) would decline from 55.5 percent in 1984 to 50.2 percent in 2000. These changes would be the result of cumulative development and employment growth in the C-3 District between 1984 and 2000.

It is important to understand the difference between the two percentages above. In each case, the same estimate of the number of jobs held by San Francisco residents is compared to an estimate for a larger group: to all employed residents of the City in the first instance and to all C-3 District employment in the second. The percentages are different since the number of

employed residents is different from the number of jobs. These percentages both describe the same employment situation, but from different perspectives.

The Downtown Plan forecasts fall within the range of estimates of C-3 District workers living in San Francisco that was identified by the analysis of Alternatives in the Downtown Plan DEIR. By 2000, the Alternative forecasts range from 189,000 to 193,000 C-3 District workers living in San Francisco. The relative comparisons described above apply to all the Alternatives; the percentage of total employed San Franciscans working in C-3 District jobs in 2000 would be higher than in 1984, while the percentage of C-3 District jobs held by residents would be lower.

The residence patterns of future occupants of the 101 Hayes project can be estimated using information developed in the Downtown Plan analysis. This approach assumes that employment densities for the building and residence patterns for those working in the building would reflect the average conditions for all similar buildings and occupants in the C-3 District in the year 2000. According to this approach, 221 of the 481 employed in the 101 Hayes project would live in San Francisco.[15] The project would account for about less than 1% of the projected increase in San Franciscans employed in the C-3 District in year 2000 under the Downtown Plan forecast. [16]

Estimates Based on the List of Office Projects in Downtown San Francisco

An alternative means of evaluating the cumulative effects of projects such as the proposed 101 Hayes project is to use the list of all projects that are under construction, approved, or under formal review. The list includes projects throughout the greater downtown, which includes the C-3 District as well as adjacent areas. It is possible to calculate from the list the change in the number of downtown workers living in San Francisco associated with this amount of development. Adding this number to the 1984 base estimate of downtown workers residing in San Francisco produces an estimate of total downtown workers living in the City, once all projects on the list were built and occupied. The results from this approach indicate that about 230,000 workers in the greater downtown area would live in San Francisco at that time.[17] This approach uses data from the 1983 Transportation Guidelines to estimate the residence patterns of future employees in the buildings on the list. Unlike the Downtown Plan forecast approach, this approach incorporates no changes over time in either employment densities or residence patterns. It assumes that current average conditions (reflected in the Transportation Guidelines) would continue throughout the build-out period for the list.

The project would account for less than 1% of the increase in downtown workers living in San Francisco when all projects on the list were built and occupied. The project would represent a smaller share of future activity in the greater downtown area than of activity in the C-3 District alone.

Differences In Cumulative Approaches

There are several important differences between the two approaches to cumulative analysis: the Downtown Plan approach of forecasting space and employment and the approach of using a list of proposed projects. The first approach incorporates forecasts of new development for all land uses (office, retail, hotel, and housing) and accounts for the demolition and conversion of existing space. The second approach accounts for the net addition of office and retail development. Moreover, the Downtown Plan forecast methodology incorporates changes in economic activity and employment that would occur in the use of existing space, while the list includes the changes accommodated by net new construction and some conversions.[18] The Downtown Plan forecast also includes employment growth, such as building maintenance and construction employment, that is not directly related to the occupancy of space. The Downtown Plan forecast incorporates changes over time in residence patterns, reflecting changes in the regional distribution of population, housing, and employment. The list approach applies relationships derived from current conditions to the future situation, assuming no changes over time. The Downtown Plan approach is currently limited to the C-3 District while the list covers a larger geographic area. In addition, there is no definite timeframe associated with the list, while the Downtown Plan forecast represents a best estimate of the development likely to be built and occupied from 1984 to 2000. It is because of these differences that the cumulative estimates of future residence patterns under each approach are not comparable. Within each approach, however, the project can be compared to the cumulative totals as described above.

Housing Market Implications for San Francisco[19]

With continued employment growth, there would be more people with a preference for San Francisco housing and with greater financial resources to pay for housing. This demand would be added to an otherwise large group of consumers with preferences for City housing.

The supply of housing is expected to be expanded in San Francisco. However, the private market is currently unable to directly produce an adequate supply of affordable housing. This situation arises from a number of national, regional, and local factors and is expected to continue.

There would be greater competition for available housing units with employment growth than without it. As a result of increased competition, housing prices and rents would be higher with continued employment growth than without it. How much higher depends on the future of other factors (such as interest rates and the availability of financing) and cannot be easily quantified. Generally, continued employment growth at the levels reflected by the Downtown Plan Draft EIR forecast and the cumulative list could contribute to a future situation where housing prices and rents are moderately higher, on average, than current levels. At a minimum, employment growth is likely to be among the factors which keep prices and rents at their current levels, in constant dollars.

A more competitive City housing market with higher prices/rents would affect the type and quality of housing that can be purchased or rented for various prices and rents, the share of financial resources devoted to housing, and the extent to which housing needs and preferences are met. Over the long term, it could also affect the mix of types of residents in the City. Different households would be affected in different ways. There would be people who decide not to move into the City and existing residents who would eventually move out of the City for more acceptable housing elsewhere. There would be many individuals who continue to live in San Francisco and pay higher prices/rents for City housing. Still others, who are unable or unwilling to pay more, would accept housing which does not meet their preferences or needs. And finally, there would be owners of existing units who would benefit to the extent that their housing appreciates in value.

Generally, those households with fewer financial resources available to pay for housing would make the most sacrifices in adapting to more competitive market conditions. They would have less ability to compete for housing and fewer options available to them. San Francisco currently has and will continue to attract a large number of persons that would be faced with these difficulties in securing housing.

The proposed project, as part of the future pattern of downtown office development, would contribute to these housing market impacts. The project's individual contribution cannot be separately identified.

Regional Perspective on Residence Patterns and Housing

The residence patterns of San Francisco workers can also be considered from a regional perspective. Future labor force, housing, and employment throughout the region are important factors in the Downtown Plan residence patterns forecasts. Expected trends in labor force participation, workers per household, housing production, and employment growth provide the future

regional context in which the Downtown Plan forecasts were prepared.

Table 5 (p. 50) presents residence patterns forecasts for C-3 District workers as prepared for the Downtown Plan Draft EIR and an alternative residence patterns forecast for downtown workers using the March 10, 1984 list of downtown projects.[20] Both residence patterns forecasts are shown as percentages of the total employed population in each part of the region, as forecast by the Association of Bay Area Governments (ABAG).[21]

The Downtown Plan 1984 estimates and forecasts for 2000 indicate that the largest number of C-3 District workers would live in San Francisco, followed by the East Bay, the Peninsula, and the North Bay. The largest increase of C-3 District workers would be for those living in the East Bay, followed by San Francisco, the Peninsula and the North Bay. Next, the table compares the Downtown Plan residence patterns forecasts for C-3 District workers to ABAG's forecasts of total employed residents throughout the region. C-3 District workers would represent a relatively large share of all employed San Franciscans and relatively small proportion of the labor force in other Bay Area counties. Comparing 1984 and 2000, there would be no major change in the percentage of C-3 District workers regarding residence patterns. The same conclusion applies as to the other five Alternatives to the Downtown Plan.

The residence patterns forecast using the list of downtown projects leads to similar conclusions. In this case, the analysis of residence patterns for downtown workers do not consider changes over time in regional labor force, housing, and employment.[22] The estimated downtown workers under this approach represent a large share of both the totals and growth of employed residents in San Francisco, and a relatively small share of both the total and growth of employed residents elsewhere in the region. As in the case of the Downtown Plan forecast in 2000, there would not be large changes from the 1984 percentages showing downtown workers relative to the rest of the region's labor force.

Because regional housing supply assumptions are one basis for the forecasts, the observation that the changes over time in the C-3 District or downtown workers as a percentage of the region's labor force in subregional areas would not be large indicates that C-3 District/downtown workers would not than they do now. In the future, the relationship between C-3 District/downtown workers and other workers competing for housing in the region would be similar to the conditions in 1984.

Table 5

	Downtown Plan Forecast of Residence Patterns of C-3 District Workers (a)						List-Based Forecast of Residence Patterns Of Workers in Greater Downtown Area (b)					
	Number of Workers			Percent of Total Employed Population In Each Part of Region (c)			Number of Workers			Percent of Total Employed Population In Each Part of Region (c)		
	Total 1984	Total 2000	Change 1984-2000	Total 1984	Total 2000	Change 1984-2000	Total 1984(d)	Total Future(d)	Change from 1984(e)	Total 1984	Total Future	Change from 1984(f)
San Francisco	159,000	189,000	30,000	45%	47%	56%	198,000	230,000	32,000	57%	57%	59%
East Bay	73,000	110,000	37,000	7	8	9	94,000	114,000	20,000	9	8	5
Peninsula	35,000	48,000	13,000	4	4	4	46,000	54,000	8,000	5	4	2
North Bay	19,000	29,000	10,000	7	7	7	27,000	33,000	6,000	10	9	4
TOTAL	286,000(g)	376,000(g)	90,000	11%	10%	10%	365,000	431,000	66,000	14%	12%	7%

/a/ Included permanent employment and annual average construction employment. Incorporates changes in employment for office, retail, hotel and other uses.

/b/ There is no time frame associated with development of the projects on the list. This amount of space would probably be absorbed between 1990 and 2000. If all the projects on the list were built before the year 2000, there would be more development (not currently on the list) and thus more workers in the downtown area by that year. In this case, the percent of the regional employed population in 2000 would be higher than shown here.

/c/. Forecasts of employed residents in Bay Area counties from ABAG, Projections '83. ABAG presents forecasts of employed residents for 1985 and 2000. For comparability with the cumulative analyses (which use 1984 as the base year), ABAG's 1980 to 1985 projections were prorated over the five-year period to estimate 1984 conditions for the region.

/d/ The 1984 estimate of total employment in the greater downtown area includes C-3 District estimates from the Downtown Plan DEIR and order-of-magnitude estimates for the other downtown areas in that year. For the future employment estimate, estimates of employment growth from the development of buildings on the list are added to the 1984 base year totals. See note /e/.

/e/ This estimate is based on all projects on the list except those included in the Downtown Plan DEIR 1984 base year estimate. The estimates of employment and residence patterns for projects on the list are based on data in the Transportation Guidelines, September, 1983.

/f/ The ABAG forecasts of employed population in each area of the region in 2000 are used for this calculation. As mentioned in note /b/, the projects on the list are likely to be built and occupied between 1990 and 2000. Therefore, by the year 2000, more development (and thus more workers) could be expected and the percentages of the total regional employed population would be higher.

/g/ The Downtown Plan forecasts include some workers who would live outside the Bay Area. This is a small number and is not shown here.

SOURCE: Hecht Hausrath & Associates

In terms of the regional housing market, downtown development and employment growth would not, by themselves, have a major effect on housing markets in other Bay Area counties or in the region as a whole. As a part of total regional employment growth to the year 2000, however, increases in San Francisco employment can be viewed as contributing to regional housing demand. A strong regional economy has been and will continue to be a factor supporting a competitive regional housing market with relatively high housing prices and rents.

Fiscal Impacts

Assessed Valuation and Property Taxes: The project would have a fair market value of about $18 million (in 1983 dollars). A total of about $180,000 in non-bond property tax revenues would be generated by the project based on the property's full assessed (or market) value. An estimated $153,000 would accrue to the City's General Fund, a net increase of $143,663 over existing ($9,337) non-bond property tax revenues to the City. The project would also generate non-bond property tax revenues of $12,600 ($11,789) net increase over existing) to the San Francisco Unified School District; $2,100 ($1,965 net) to San Francisco Community College; $180 ($160 net) to the Bay Area Air Quality Management District; and $1,080 ($422 net) to BART.

The building would also generate property tax revenue to be used to retire bond debts. The amount of principal and interest payments due in the year of project completion would determine total revenues to be generated. The rate in 1983-84 is $0.11 per hundred dollars of assessed value. If that rate remained unchanged at the time of building occupancy, bond payment revenues from the building would be about $19,800 a net increase of $18,765 above existing 1983-84 bond retirement revenues of $1,035.

Costs to San Francisco for providing municipal services to the proposed project would be greater than the costs of serving the existing parking lot. Cost increases due to increased patronage would be expected for Muni, SamTrans, BART, and Golden Gate Transit. The City's general fund provides for a subsidy to the Municipal Railway's operating budget. The subsidy covers the difference between Muni's costs and the revenues that Muni receives from fares and from federal and state governments and represents the cost of Muni to the City. The net marginal cost (or increase in the City's deficit for Muni operation) per peak-hour ride was $0.39 in 1982. The proposed project would generate 100 outbound peak-hour trips which could generate a net marginal cost to Muni of about $10,140.[23] The extent to which this cost would be met by the general fund allocation to Muni is not known. State and federal funds to Muni are decreasing and the City is reviewing other options for increased revenues.[24]

It is estimated that 80 peak-hour trips a day on BART would be generated by the proposed project employees. The District's deficit per rider for BART is estimated at $1.33.[25] Using this rate, the proposed project would generate a BART deficit of about $27,040. However, additional property tax and sales tax revenues generated by the project for BART would affect the project's share of the operating deficit.

If the same proportion of General Fund revenues historically allocated to Muni continued, it could be assumed that the proposed project revenues would exceed municipal costs directly attributed to the project at the time of occupancy. Due to limitations imposed by Proposition 13 on property tax increases, revenues might not increase as rapidly as inflationary increases in City costs. If all current sources of revenue associated with the proposed project were held constant (i.e., fees and rates do not change and no new assessments are levied) costs would eventually exceed revenues.[26,27]

Footnotes

1. Department of City Planning, City and County of San Francisco, "Guidelines for Environmental Review - Transportation Impacts," September, 1983, p. 14.
2. California Office of Planning and Research (OPR), Economic Practices Manual, , January 1978, pp. 35-37.
3. Roger Dillon, Secretary-Treasurer, Building Services Employees Union, Local 87, telephone communication of February 14, 1983.
4. George Rescalvo of Columbus Environmental Company, project sponsor.
5. Department of City Planning, op. cit.; The formula is 126,000 gross sq. ft. of office space/250 gross sq. ft. per employee x .40 (San Francisco residents)/1.8 workers per household = 112 households generated by the project. Although the transportation and employment calculations use 275 sq. ft. per office employee, this calculation for OHPP is an adopted policy. If the 275 sq.ft. per employee calculation were used for estimating housing impacts, the number of housing units would be reduced proportionately.
6. The analysis leading to the 15-30% formula comes from the Recht Hausrath analysis found in Appendix C of 101 Montgomery Final EIR (EE80.26). The formula is 126,000 gross sq. ft. of office space/250 gross sq. ft. per employee x .15 to .30/1.4 workers per household = 54 to 108 household units generated by the project.
7. Questor Associates, Feasibility of Performing a Housing Affordability Analysis,June 15, 1982. This study is available for public review at the San Francisco Department of City Planning, 450 McAllister St., 5th Fl.

8. Recht Hausrath Associates, "The Feasibility of Performing a Housing Affordability Analysis Relevant to Office Growth in Downtown San Francisco," July, 1982.
9. Dean Macris, Director of Planning, op. cit.
10. City Planning and Information Services, "1980 Census Information", March 1982. This median rent figure includes residential hotels which have substantially lower rents than other types of rental units.
11. Escalation to 1983 dollars is based on a 24.3% rise in the Consumer Price Index.
12. San Francisco Board of Realtors, "Multiple Sales Service", October 5, 1981. (Annual data on housing sales prices including all homes sold from February 11, 1981 to October 1, 1981.)
13. For a description of the methodology used to forecast residence patterns, see Appendix I, Downtown Plan Draft EIR, pp. I.8-I.30. For a description of existing and forecast future residence patterns of C-3 District workers, see Downtown Plan Draft EIR, Section IV.D, Residence Patterns and Housing.
14. Downtown Plan Draft EIR, p. IV.D.67.
15. One employee is accomodated for every 267 sq. ft. of office space and 44% of these (or 208 people) would live in San Francisco. One employee is accomodated for every 350 sq. ft. of retail, and 75% of these (or 13 people) would live in San Francisco.
16. In order to ensure consistency with the cumulative transporation analysis and to provide information on region-wide impacts, this section does not usethe OHPP and 101 Montgomery formulas for estimating the number of workers who would live in San Francisco. These formulas only provide estimates of office workers living in San Francisco; they do not include factors for estimating workers living in other parts of the region.
17. For the 1984 estimates of workers in the greater downtown area, the C-3 District estimates of employment and residence patterns prepared for the Downtown Plan DEIR were used as a base to which order-of-magnitude estimates for that year for the other downtown areas were added. The Transportation Guidelines were used to estimate employment and residence patterns for projects on the March 10, 1984 list for the greater downtown area. The workers associated with these new projects were added to the 1984 base year total estimate.
18. As explained in the Downtown Plan Draft EIR, the use of existing space is expected to intensify by the year 2000. For example, office employment growth is forecast to exceed the growth of employment that would be accommodated by the development of new office space. From 1990 to 2000, more intensified use of existing space would be equivalent to about a 40 percent increase in the net addition of office space forecast for that period. (See p. IV.B.41 in Downtown Plan Draft EIR.)

19. This subsection presents a summary of the discussion in the Downtown Plan Draft EIR (see pp. IV.D.77 - IV.D.82 and pp. I.1 - I.8), which is hereby incorporated by reference pursuant to State CEQA Guidelines, Section 15150.
20. As explained earlier, there are several differences in the estimates of employment and residence patterns derived from these two approaches to cumulative analysis. The most important differences are apparent in the two employment estimates shown in this table. The Downtown Plan employment totals for the C-3 District are smaller than the total employment estimate for the greater downtown area, primarily because the latter estimate covers the C-3 District, plus other areas such as the south of Market area, Civic Center, and the northern waterfront. The growth for this larger downtown area is smaller than the C-3 District growth, however, because the list of downtown projects includes known projects, not all development likely to occur by 2000, and also does not incorporate changes in the use of existing space, such as increasing office employment densities.
21. Assocation of Bay Area Governments, Projections '83. This report presents forecasts from 1980 to 2000 of population, employment, households and employed residents for each of the nine Bay Area counties.
22. The distribution of downtown workers among the Bay Area counties is based on the residence patterns forecasts for 1984 prepared for the Downtown Plan Draft EIR and on the Department of City Planning's Transportation Guidelines for Environmental Impact Review, September, 1983.
23. Bruce Bernhard, San Francisco Utilities Commission, The Marginal Cost of Peak Muni Passenger Trips per Unit of Office Space, February 1981. 100 x $.39 x 260 working days a year = $10,140. The deficit for Muni operations is the difference between the total cost of Muni operations and the amounts generated by fare box revenue and state and federal grants/subsidies.
24. Bruce Bernhard, San Francisco Public Utilities Commission, conversation, January 18, 1982.
25. Department of City Planning, 101 Montgomery FEIR, EE 80.26, certified May 7, 1981, page 42, 80 rides x 260 working days x 1.3 = $27,040.
26. Ibid., certified May 7, 1981, Appendix C, pages 316 to 318.
27. The Transit Impact Development Fee requires the project to be responsible for paying $5.00 per square foot for office space. The fee of $5.00 x 126,000 sf = $630,000 would be due.

D. Transportation Impacts

1. Policies and Plans

Policies stated in the San Francisco Civic Center Transportation Systems Management Plan include the following:

- Reduce single occupant commute work trips to the Civic Center area;
- Encourage more efficient use of current transportation resources; and,
- Emphasize the use of public transit and high occupancy vehicles.

The project would be responsive to these policies because it would discourage auto use by providing only 11 parking spaces. In addition, the site's good accessibility to transit lines would respond to the policy calling for an emphasis on the use of public transit.

2. Travel Demand Analysis

On the basis of land use, the project would generate about 3,190 net new person trips-ends (pte) per day.[1] These figures include trips made by auto, public transit, and other modes. Projected PM peak-period and peak-hour trips by mode expected to be generated by the project are shown in Table 6 (p. 57). About 450 new outbound trips would occur during the PM peak-period due to the project, of which about 270 would occur in the PM peak hour.[2]

Modal assignments have been made on the basis of future modal splits for the year 2000 contained in the Draft EIR for The Downtown Plan (EE81.3).[3] The future modal splits have been applied to the project travel for the purpose of comparing project travel with future travel demand on the transportation system serving San Francisco. The modal splits used were derived from aggregate data for the C-3 District, the zoning district that contains the project site, and thus represent an average condition. The actual modal split for travel from the project may vary from the C-3 District average. However, because the travel demand forecasts used to derive the average modal split data include the travel from the project, application of the average modal split data to project travel has been assumed to be sufficiently accurate for purposes of comparison.

Cumulative Travel Demand: Analysis of the transportation impacts of cumulative development in San Francisco EIRs has been the subject of considerable public discussion. To date, cumulative analysis has been conducted on the

basis of a list of proposed development in the greater downtown area (see Table C-2, Appendix C, for the March 10, 1984 list of these projects). The Downtown Plan Draft EIR presents a refinement of the existing process by using projections of employment growth, independent of a list of proposed projects, to estimate future travel.[4]

As discussed in Appendix J of the Downtown Plan Draft EIR, transit service improvements have been assumed to be implemented by the Year 2000. The service improvements assumed to occur correspond to the vehicle acquisition portions of the Five-Year Plans for Muni, AC Transit, SamTrans, CalTrain, and Golden Gate Transit. In BART, both the vehicle acquisition program and the trackage improvements (Daly City tail track) were assumed to occur. These planned improvements would allow system capacities to keep pace with demand increases over time. The Downtown Plan Draft EIR analysis also assumes that regional auto use will continue to change over time in response to the increasing levels of congestion on the bridges and freeways serving the City. The analysis projects a shift from single-occupant auto use (drive alone) for commuting to ridesharing (carpool, vanpool), and to transit use. The assumptions of continuing shift from auto to transit and ridesharing, most apparent in the 2000 modal splits, are made on the basis of long-term trends in transit use in the San Francisco commute corridors. Census data show that in the period 1970 to 1980, transit use for commuting increased. Similarly, Bay Bridge data show that ridesharing has been increasing over the last seven years. Thus, the shift to transit and ridesharing is well-established in San Francisco commute corridors.

The travel data presented in the Downtown Plan Draft EIR Transportation Section (and in this report) are projections of total demand on the transportation system serving San Francisco. The projections comprise three components of travel demand. Two of the components were developed through an intricate travel modelling process for the C-3 District of San Francisco. These first two components of travel demand are C-3 District work (employee journey-to-work) travel and C-3 District non-work (all other) travel. The third component is non-C-3 District travel which was forecast through an analysis of regional trends adjusted for the effect of development in the C-3 District. Non-C-3 travel is defined as travel that has neither an origin nor a destination in the C-3 District. Thus, non-C-3 travel includes travel to and from other parts of downtown and trips though San Francisco from other parts of the region. Employment projections are not specifically used in the non-C-3 travel analysis.

Table 6

Projected Outbound Travel Demand by Mode from 101 Hayes (pte/1/)

Travel Mode	P.M. Peak Period/2/	P.M. Peak Hour/2/
Drive Alone	60	35
Car/Vanpool	55	40
Muni	100	55
BART	80	50
AC Transit	20	10
SamTrans	5	5
SPRR	10	5
GGT Bus	20	10
Ferry	5	5
Walk Only	85	50
Other	10	5
TOTALS (rounded)	450	270

/1/ Person trip-ends
/2/ The peak hour occurs during the two-hour peak period of 4:00 - 6:00 P.M.

SOURCE: Environmental Science Associates, Inc.

Although the C-3 District transportation modelling process used analytical techniques common to travel forecasting, several portions of the process are unique to the C-3 District. The uniqueness is the result of the development of two major data bases - an inventory of existing land uses in the district and surveys of employees and employers in the district. The data developed from the surveys and the inventory have been used as the basis for forecasts of development and employment growth in the C-3 District. Sections IV.B, Land Use and Real Estate Development; IV.C, Business and Employment; IV.D., Residence Patterns and Housing; and Appendices G, Land Use and Real Estate Analysis, H, Business and Employment Analysis, and I, Theoretical Discussion of Housing Market Effects/Methodology for Forecasting Residence Patterns, of the Downtown Plan Draft EIR, which contain detailed information about methods used to project future employment in the C-3 District, are incorporated by reference into this report and summarized below and in the Land Use and the Residence Patterns and Housing sections of this EIR.

The cumulative analyses for forecasting future land use, employment, and residence patterns are described in the Downtown Plan Draft EIR. Appendix sections therein describe the methodology, identify the factors considered, and identify the types and sources of data used. A concise description of major components of the process of developing employment and land use development forecasts is presented in the flow charts in Figure H.1 and Figure G.1. The factors considered in forecasting residence patterns are identified in the diagram in Figure I.1.

The Downtown Plan Draft EIR approach for forecasting future land use, employment, and residence patterns is based on a conceptual framework of the process of urban economic development. The analytical procedures incorporate a variety of types and sources of data and information concerning past, current, and likely future conditions regarding economic, real estate, demographic, and public-policy factors.

The employment projections in the Downtown Plan Draft EIR for the Year 2000 exceed the maximum employment projected using the current list-based cumulative analysis, as the list cannot take into account projects not yet proposed. The employment forecasts have been used as the basis for the travel demand modelling process. As described above, the C-3 District travel comprised two of the three components of total travel. Because of the use of the employment projections in the travel demand modelling process, the transportation forecasts for the Year 2000 are independent of lists of cumulative development.

Through a complex calibration and validation process of comparing projections of travel demand modelled on the basis of the survey of C-3 District employees to actual travel from measurements made by state, city and regional agencies, work and non-work travel demand from the C-3 District was modelled for the years 1984, 1990 and 2000. The modelling process is comprised of the following steps:

- Trip generation rates (empirical measures of total travel to and from a specific land use) were applied to employment forecasts by business activity (i.e., different rates were used for various land uses).

- The total travel from the C-3 District was distributed to seven Bay Area zones on the basis of projections of future employee residence patterns and origin-destination patterns for non-work travel.

CITY PLANNING COMMISSION
NOTICE OF HEARING ON
DRAFT ENVIRONMENTAL IMPACT
REPORT FOR THE FOLLOWING.

81.540E: 101 Hayes Street southwest corner of Polk Street; Lots 1, 16, 21 in Assessor's Block 814 Construct an 11-story, 160 foot high building containing approximately 126,000 gross square feet of offices over 6000 gross square feet of retail space and below grade parking for 11 automobiles; replacing a 64-space surface parking lot

Notice is hereby given to the general public as follows

1. A draft Environmental Impact Report has been prepared by the Department of City Planning in connection with this application and is available for public review and comment at the Department offices at 450 McAllister Street, 5th Floor.

2. A public hearing on this draft Environmental Impact Report and other matters will be held at the regular Planning Commission meeting in Room 282, City Hall on Thursday, December 6, 1984 at 1:00 p.m. or later For a more specific time, contact Lee Woods, Commission Secretary, at 558-4656 after December 3, 1984.

ALEC S. BASH
Environmental Review Officer

84.223E
November 2, 1984-11
N56409—Nov 2

- Trips to each of the seven regional zones were assigned to travel modes on the basis of modal splits (distribution of travel over the transportation modes, auto, transit, etc.) developed from the C-3 District surveys.

At this stage of the process, the model forecasts total travel from the C-3 District. To complete the process and to allow analysis of the effect of travel demand from C-3 District development on the transportation network, the non-C-3 travel demand was analyzed. The total travel demand was calculated by summing C-3 District work and non-work travel and non-C-3 travel at subregional measuring points (called screenlines) located at or just beyond the San Francisco County Line (except for Muni and BART West Bay service which were measured inside San Francisco, outside the downtown). The total travel demand was then compared to available service capacity at the screenlines and operating conditions (demand-to-capacity ratios) were analyzed assuming planned improvements. The results of those analyses are summarized later in this section.

For future years, the C-3 District travel modelling process was modified to incorporate changes in travel patterns (modal split changes, different travel times), employee residence patterns and changes in land use patterns. The process incorporates the dynamic aspects of changing Bay Area travel patterns, rather than assuming a fixed, unchanging condition over time. An example of past changes in travel patterns can be seen in the amount of carpooling activity on the Bay Bridge. In 1977, peak average vehicle occupancy westbound on the Bridge was 1.7 persons per vehicle. By 1983, in response to increasing congestion and increased travel and parking costs, peak average vehicle occupancy westbound increased to 2.1 persons per vehicle.[5]

The non-C-3 District travel demand was forecast through the use of growth factors developed on the basis of historic trends in regional and sub-regional travel.[6] Historic growth rate factors have been used to project increases only for non-C-3 District travel at the regional screenlines. No other use of historic growth rates has been made in the transportation analysis. Because of the individual and unique nature of each of the transportation screenlines, each growth rate is based on data for that location. Thus, the growth rates for freeways project growth in auto trips, while the growth rates for transit project growth in ridership.

Each of the historic growth rates inherently contains information about regional growth in travel patterns and thus incorporates not only growth from other parts of San Francisco, but from elsewhere in the region. As an example, the historic growth factor for trips southbound on US 101 includes

travel that crosses the Bay Bridge or the Golden Gate Bridge as well as travel from San Francisco. However, the growth is projected as growth in auto travel and cannot be related directly to growth in employment in San Francisco.

The other process used to forecast cumulative transportation impacts starts with a list of cumulative office and retail development (net new office and retail space) proposed, approved or under construction in the greater downtown area. From that list, through the use of static employment densities for office and retail uses and established trip generation rates, forecasts of travel demand are made. The forecast travel is assigned to modes on the basis of static modal split factors (which are assumed not to change over time). The Transportation Guidelines for Environmental Impact Review: Transportion Impacts (Department of City Planning, September 1983, hereinafter Transportation Guidelines) describe the process and the data used to calculate transportation impacts form the list-based development.

The March 10, 1984, list for all of downtown has about 19 million gsf of net new office space and about 0.9 million gsf of net new retail space. On the basis of the Transportation Guidelines analysis, the list-based development would generate approximately 80,000 PM peak-period person trip-ends, of which about 49,000 would occur in the PM peak hour. Table 7 (p. 62) shows a comparison of the projections of travel demand from the list-based analysis and from the Downtown Plan Draft EIR for the Year 2000 for the C-3 District Study. While the list contains development both inside and outside the C-3 District, the Downtown Plan Draft EIR makes specific projections only for C-3 District development, and the travel components shown in Table 8 (p. 62) are for the C-3 District only; therefore, for purposes of comparison, travel from the C-3 component of the list (about 13 million gsf of net new office space and 0.4 million gsf of retail space) has been analyzed for comparison with the projections from the Downtown Plan Draft EIR for Alternatives 1 to 5 and the Downtown Plan.

As shown in Table 7, travel demand from the Alternatives in the Downtown Plan Draft EIR ranges from Alternative 1 (about 17% higher than the Downtown Plan) to Alternative 4 (about 5% lower than the Plan). Although there is a range, the spread is within the level of accuracy of the transportation analysis, and thus, statistically the transportation impacts of the Alternatives are equivalent to those of the Downtown Plan.

Several anomalies are apparent in the data shown in Table 8. The major anomaly is that while the C-3 component of the list would generate about half as much travel as do the Downtown Plan and the five Alternatives, the list-based analysis yields projected travel demands within San Francisco (inside

and outside the C-3 District) that exceed those generated by the Downtown Plan and the Alternatives. An explanation of this major anomaly is presented in the following paragraphs.

The difference in total travel results in part from the different time frames of the list and the Downtown Plan Draft EIR. The Downtown Plan Draft EIR established 1984 as the baseline year and 1990 and 2000 as target study years. Estimates of growth were made on the basis of projections for each of the target years for the range of alternatives. In contrast, the projects included on the cumulative list span a period from 1984 to sometime in the early or mid-1990's when completion of all projects on the list or a similar amount of square footage would be expected.[7] Thus, results of impact analyses using these two forecasting methods are not directly comparable.

The variations in travel by trip purpose (work, other) and by travel mode (as shown in Table 7) between the list-based method and the Downtown Plan Draft EIR method can be explained by differences in the methodologies and data bases used to forecast the travel demand. The list-based analysis employs single-use trip generation data to estimate total travel through the process of adding together the trip generation estimates from all the individual buildings on the list. These single-use trip generation rates do not incorporate any discounting factors to account for trips going from one building to another within the downtown. Studies for the Downtown Plan Draft EIR have confirmed that there is considerable travel between land uses in the downtown area. Thus, the list-based analysis adds each trip as if it were a new trip in or out of the downtown and overestimates the number of peak-hour trips.

The Downtown Plan Draft EIR travel demand model has refined the trip generation process by incorporating discounting factors that adjust the trip generation rates to give travel to and from the C-3 District as a whole; it does not include trips internal to the C-3 District. Thus, while the Downtown Plan Draft EIR process projects proportionately more work travel than does the list-based analysis, observations show the Downtown Plan Draft EIR forecasts more closely resemble actual travel demand that would result from downtown development.

The differences in distribution of travel among modes (shown in Table 7) are the product of refinements in the regional distribution and modal split analyses in the Downtown Plan Draft EIR process. The list-based analysis assumes a static (unchanging over time) regional distribution and static modal splits. The Downtown Plan Draft EIR analysis has incorporated changes in both the regional trip distribution (reflecting projected availability of housing) and the modal splits (reflecting projected availability of roadway and transit capacity in the future).

Table 7

Comparison of List Method and Economic Forecast Method - Outbound PM Peak-Hour Cumulative Travel Demand for the C-3 District (Person Trip Ends)

Mode of Travel	3/10/84 List/a/	Downtown Plan (1984-2000)/b/	Alternative 1 (1984-2000)/b/	Alternative 2 (1984-2000)/b/	Alternative 3 (1984-2000)/b/	Alternative 4 (1984-2000)/b/	Alternative 6 (1984-2000)/b/
Work Person Trip-ends	22,100	41,400	47,600	46,200	44,400	39,100	39,700
Other Person Trip-ends	8,200	12,100	14,700	14,200	13,400	11,800	11,800
Total Person Trip-ends	30,300	53,500	62,500	60,500	57,900	51,000	51,600
Muni Northeast	900	1,600	1,700	1,600	1,600	1,700	1,700
Northwest	3,700	1,800	2,000	1,900	1,800	1,800	1,800
Southwest	3,100	1,100	1,100	1,000	900	800	800
Southeast	600	1,100	1,000	1,000	1,000	600	700
BART Transbay	4,500	11,800	13,300	13,100	12,700	11,300	11,300
Westbay	1,900	2,400	2,800	2,700	2,600	2,300	2,300
AC Transit	1,700	200	600	500	300	-100	-100
GGT Bus	1,100	3,200	3,700	3,600	3,500	2,700	3,100
Ferry	300	800	800	800	800	800	800
SamTrans	300	1,200	1,300	1,300	1,200	1,000	1,100
SPRR/CalTrain	500	1,800	2,000	1,900	1,800	1,700	1,700
Regional Auto/c/							
Golden Gate Bridge	370	410	630	590	540	390	370
Bay Bridge	960	1,250	1,550	1,540	1,510	1,060	1,110
Bayshore Freeway (U.S. 101)	420	470	650	620	590	400	400
Interstate 280	420	470	650	620	590	400	400

/a/ Travel from only those projects on the list that are located inside the C-3 District. The list also contains development located in the greater downtown area outside the C-3 District; travel from those projects has been included in the list-based travel shown in the remainder of this section.
/b/ Travel from the C-3 District only. The analysis used in the Downtown Plan Draft EIR assumes growth in regional travel that is not shown above; it is discussed in the remainder of this section.
/c/ Vehicle trip-ends; calculation made on the basis of 2.7 persons per carpool and 12 persons per vanpool. Person trip-ends on transit cannot be added to vehicle trip-ends to obtain total person trip-ends because of the varying numbers of persons per vehicle.

SOURCE: Environmental Science Associates, Inc.

The list-based analysis yields more San Francisco travel (as shown by larger Muni numbers for the list-based analysis in Table 7) than does the Downtown Plan Draft EIR analysis because the Downtown Plan Draft EIR analysis projects a declining availability of housing in the City. Thus, as the downtown work force increases, the percentage of workers living in San Francisco would decrease. The list-based analysis assumes that the percentage of workers living in San Francisco would remain constant over time and thus overestimates the numbers of future employees living in the City and underestimates the numbers of regional commuters.

Other differences in travel among the modes, particularly regional auto and AC Transit, are the result of the refined modal split process used in the Downtown Plan Draft EIR. As the list-based analysis assumes that modal split remains constant over time, the list-based analysis is insensitive to the abilities of transit agencies and regional roadway systems to serve future demand. The Downtown Plan Draft EIR analysis has assumed that the modal split would change over time in response to the increasing levels of congestion at the regional screenlines (described in the Downtown Plan Draft EIR). Thus, because the Bay Bridge is at or near capacity in the PM peak hour eastbound, the Downtown Plan Draft EIR modal split projects a proportionately lower increase in auto demand to the East Bay than does the list-based analysis. Similarly, for AC Transit the Downtown Plan Draft EIR recognizes that current regional transit policy dictates no increases in AC Transit transbay service; thus, the ability of AC Transit to carry additional riders transbay will be restricted in the future. Use of this changing modal split is a refinement that allows the travel model to more accurately forecast travel demand and thus, the Downtown Plan Draft EIR results represent a more accurate level of projection than has been possible using methods and data available to date.

Various other factors cause differences in the travel demand projections between the two approaches. The Downtown Plan Draft EIR and the Consultant's Report on Downtown Growth Management Alternatives (Environmental Science Associates, 1983) contain extensive discussion of the analyses and data used to forecast employment, land use (see sections cited above) and transportation demand (see Section IV.E and Appendix J of these reports).

3. Transit

The transit agencies serving downtown San Francisco carry approximately 60% of the peak-period employee work travel, as well as about 20% of the peak-period other travel. PM peak-hour and peak-period loadings on the local and regional transit routes were found to be near capacity for some of the routes in 1984 (see Table 8, p. 65). The values shown in Table 8 are sums for the peak hour and the two-hour peak period. Within the peak hour, there would be periods of time when the loading ratios would be higher than those shown for the one hour (peak-of-the-peak) conditions. Individual transit vehicle loadings vary on a day-to-day basis because of fluctuations in ridership (demand) and because of variations in operating conditions caused by traffic congestion, equipment availability, and/or system breakdowns. Photographic examples of PM peak-hour loadings on Muni vehicles are shown in Appendix C, Figure C-1, pp. A-51 to A-53.

The 1981-82 transit ridership and loading data used in the Downtown Plan Draft EIR analysis are summations of actual counts of individual transit lines for that period in time. Calculations are made on the basis of observed operating conditions, as opposed to scheduled operations. Muni supplied the data for the Downtown Plan Draft EIR analysis from its ongoing program of ridership checks. (The data supplied and collected for each transit agency are in the supporting documentation for the Downtown Plan Draft EIR, on file with the Office of Environmental Review, 450 McAllister Street, Fifth Floor, San Francisco, California.) Muni was involved in the process of verifying the transportation analysis for the Downtown Plan Draft EIR and as a result of that process, approved of the use of Muni data and the projections derived from that data.

The Level of Service concept, similar to that developed for highway operations, has been applied to both bus and rail transit. Passengers per seat (i.e., total passengers divided by the number of seats) has been used as the measure of effectiveness to define the various level of service ranges. Table C-3, Appendix C, shows the relationship between Level of Service and passengers-per-seat ratios for bus transit systems.

During the PM peak hour in 1984, all of the transit agencies were found to be operating in Level of Service D or better with the exception of BART Transbay where conditions were found to be at Level of Service F, and Muni in the Northwest and Southwest corridors where operations were found to be in Level of Service E. Although BART is a rail transit service, its cars have a unique seating configuration. The ratio of total capacity to seated capacity for a BART car (about 1.5) is equivalent to the ratio for bus transit, and thus, the bus transit Level of Service scale is applicable to BART. Level of

Table 8

Outbound Regional Transit Demand and Level of Service

Transit Agency	1984 Demand	1984 P/S/a/	1984 LOS/b/	2000 Demand	2000 P/S	2000 LOS	Project Percent/c/	1984 + CUMULATIVE LIST Rounded Demand	1984 + CUMULATIVE LIST P/S	1984 + CUMULATIVE LIST LOS	1984 + CUMULATIVE LIST Project Percent/c/
P.M. Peak Hour											
Muni											
Northeast	7,100	1.16	D	8,800	1.05	D	0.1	8,700	1.04	D	0.1
Northwest	8,200	1.26	E	10,100	1.25	D	0.2	12,900	1.59	F	0.2
Southwest	13,500	1.45	E	16,600	1.42	E	0.1	17,500	1.50	E	0.1
Southeast	5,300	1.06	D	7,400	1.01	D	0.1	6,400	0.88	C	0.1
BART											
Transbay	16,100	1.53	F	27,900	1.42	E	0.1	21,900	1.12	D	0.2
Westbay	7,700	1.10	D	10,100	1.06	D	0.1	10,200	1.07	D	0.1
AC Transit	9,100	0.94	C	10,500	1.08	D	0.1	11,300	1.16	D	0.1
GGT Bus	5,300	1.00	C	8,500	0.91	C	0.1	6,800	0.73	B	0.2
GGT Ferry	800	0.57	B	1,500	0.38	A	0.1	1,100	0.28	A	0.2
Tiburon Ferry	200	0.40	A	300	0.60	B	0.1	200	0.40	A	0.2
SamTrans	1,900	1.12	D	3,100	1.19	D	0.1	1,300	0.88	C	0.2
CalTrain (SPRR)	3,100	0.61	B	4,900	0.79	C	0.1	3,800	0.61	B	0.2
P.M. Peak Period											
Muni											
Northeast	12,600	1.06	D	15,500	0.95	C	0.1	15,200	0.93	C	0.1
Northwest	13,100	1.13	D	15,300	1.05	D	0.2	20,600	1.41	E	0.2
Southwest	23,300	1.31	E	28,700	1.29	E	0.1	29,800	1.34	E	0.1
Southeast	9,100	1.00	C	12,100	0.88	C	0.1	11,000	0.80	C	0.1
BART											
Transbay	25,800	1.54	F	44,100	1.40	E	0.1	35,200	1.12	D	0.2
Westbay	11,300	0.80	C	14,600	0.77	C	0.1	15,400	0.81	C	0.1
AC Transit	14,000	0.95	C	17,000	1.16	D	0.1	17,500	1.19	D	0.1
GGT Bus	7,600	0.90	C	12,200	0.81	C	0.1	10,000	0.67	B	0.2
GGT Ferry	1,000	0.56	B	1,700	0.33	A	0.1	1,500	0.29	A	0.2
Tiburon Ferry	300	0.60	B	500	1.00	C	0.1	400	0.80	C	0.2
SamTrans	2,900	1.12	D	4,500	1.15	D	0.1	3,600	0.92	C	0.2
CalTrain (SPRR)	4,500	0.68	B	6,200	0.77	C	0.1	5,500	0.68	B	0.2

/a/ Passengers per Seat is the ratio of total demand to seated capacity.
/b/ Level Of Service is scale ranging from A to F that relates P/S ratios to passenger loading conditions on transit vehicles.
/c/ The percent of demand generated by the project.

SOURCE: Environmental Science Associates, Inc.

Service F ("crush" or "jammed" loadings) on BART is in the range of 1.5 of 1.8 passengers per seat. Because BART operates on a centrally-controlled system, the "crush" loadings would not increase passenger loading times (which causes deterioration of service) as would be the case on a bus transit system; rather, the effects of "crush" loadings on BART would be reflected in increased passenger discomfort.

The rail transit Level of Service scale is based on typical light rail transit systems for which total capacity is about 2.0 to 2.2 times seated capacity. The rail transit Level of Service scale would be applicable to Muni Metro. Muni Metro provides about 50% of the seated capacity to the Southwest corridor. Because Metro vehicles can accommodate higher loadings (a ratio of 2.0 passengers per seat) than buses or trolleys (a 1.5 ratio), the Level of Service would be somewhat better than shown in Table 3. An exact estimate of Metro loadings is not possible without analysis of the Metro service separate from the remainder of Muni service to the Southwest; such analysis would be beyond the ability of the travel demand analysis to accurately predict over time, as discussed in the following paragraph.

With regard to the Muni data presented in Table 8 (p. 65), the Muni routes have been aggregated on a corridor basis and thus include two-directional travel on some routes that serve the northeast and southeast corridors. The Muni numbers cannot be added over the corridors to get a total for the system. Neither can capacity to be shifted from one corridor to another. For instance, capacity in the Northeast corridor depends, in large part, on capacity that serves the Southeast portion of the City. The 15, 19, 25, 30, 30X, 30AX, 30BX, 32, 41, 42, and 47 lines pass through the downtown in two directions. Service on the above lines is interdependent. Thus, increases or decreases in capacity on one of the above lines directly affect service in the opposite direction. Service to the northeast and northwest corridors are also interconnected as lines serving the northwest must pass through the northeast corridor and, thus, serve both areas. Muni ridership and capacity have been apportioned between both areas.

Passengers-per-seat ratios are only one measure of adequacy of service. The constraints of operating on heavily used streets in and around the downtown cause transit vehicle bunching, loss of running time and missed schedules, all of which reduce service, reliability, and ultimately, capacity. In some respects, this would not be evident from simple quantitative analysis. In addition to these inefficiencies inherent within the transportation system, there are other factors which would affect overall transit capacities. These include variability in daily and seasonal ridership for which an absolute capacity must be available, as well as transit riders who remain uncounted because their transit trips both start and end beyond the screenlines used in

this analysis. Daily fluctuations in fleet availability also affect system capacity.

Further, policy considerations dictate operating conditions on certain lines where minimum headways have been established to maintain transit access to areas not warranted on the basis of ridership alone. When averaged together the ridership data from these lines may slightly distort overall ridership conditions.

PM peak-period conditions on transit in 1984 were found to be equivalent to or better than peak-hour conditions. In some cases, where demand remains at peak-hour levels during the two-hour period, the passengers-per-seat ratios in the two-hour period are higher than in the one-hour period. This anomaly is the result of transit agencies providing express (or additional) service during the peak hour but not during the entire peak period. An example of this type of operation may be seen on BART, where three extra trains operate in transbay service in the peak hour but not in the rest of the peak period. Another factor involved is the distribution of demand (ridership) at uniformly high levels over the peak-period.

Both transit demand and capacity have been assumed to increase during the period 1984 to 2000. The discussion of transit capacity increases for each agency are based on the Five-Year Plans and Capital Improvement Plans of the various transit agencies and are discussed in Appendix J of the Downtown Plan Draft EIR, pp. J.25-J.26; this material which is discussed below and summarized in Table 8 is incorporated by reference. The future capacities were developed by applying percentage increases, expected in the future, to observed existing capacity. Thus, to the extent that the existing conditions contain inherent capacity reduction for missed runs, the future capacity projections have taken into account the inability of the transit systems to provide 100% of scheduled capacity. As noted above, the Muni analysis calculates capacity on the basis of all runs leaving the C-3 District in the PM peak. For all of the transit analyses, only peak-direction vehicles are counted.

Future transit demand and loadings for the Downtown Plan in the Year 2000 and for 1984 plus the March 10, 1984, cumulative list are shown in Table 8 (p.65) for both the peak hour and the peak period. The total transit demand from the project would represent about 0.1% of the total travel demand on the transit carriers in the Year 2000.

Peak-hour transit demand on Muni in the Year 2000 would increase about 25% over 1984 levels in the northeast, northwest and southwest corridors. Muni demand in the Southeast corridor would increase about 40% between 1984 and

2000. Peak-hour demand on the other agencies would increase between 30% and 70% during the period 1984 to 2000.

Peak-period increases in demand would be between 15% and 70% from 1984 to 2000. Overall peak-period transit travel would be expected to increase about 30% between 1984 and 2000. Peak-hour and peak-period passenger loadings would be worse than in 1984, although most systems would operate in acceptable conditions (Level of Service D or better). However, BART Transbay and Muni to the southwest would be in Level of Service E during the peak hour and the peak period.

Although the data in Table 8 are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan Draft EIR. As shown in Table 7 (p. 62), total transit demand under Alternative 1 would be about 12% higher than under the Downtown Plan while transit demand from Alternate 4 would be about 9% lower than the Downtown Plan. As noted previously, these differences would be statistically significant. In terms of Level of Service, the Downtown Plan would be equivalent to the five Alternatives.

It is important to note that the Five-Year Plan improvements for the transit systems are designed both to provide for future demand increases, and to improve service levels from existing conditions. For new vehicles to expand system capacity rather than represent simple replacement on a one-to-one basis, operating reveneus would similarly need to be increased. During the Year 2000, peak-hour Muni service to the southwest and BART's Transbay service would exceed the desirable passengers per seat ratios of 1.25 and 1.30, respectively.[8] Although the transit demand in the two corridors in excess of the desirable loadings could be accommodated under crowded conditions and thus would not be excess demand (that is, not beyond capacity), demand in excess of the desirable loadings would mean that additional transit service over that assumed to occur by 2000 would need to be provided to allow transit operations in the two corridors to meet the goals set by Muni and BART. To meet the goal of 1.25 passengers per seat in the peak hour, Muni would have to increase service by about 14% in the southwest corridor over the amount of service assumed to occur in 2000. To meet the goal of 1.30 passengers per seat, BART would have to provide a transbay service increase of 14% over the amount of service assumed to occur by 2000.

If transit service were not increased beyond the amounts assumed to occur by the Year 2000 in the Downtown Plan Draft EIR, transit operations (in terms of passenger comfort) would be slightly better than 1984 conditions. Peak-hour and peak-period passengers-per-seat ratios would be lower than 1984 ratios

even though service (in some corridors) has been assumed to increase as much as 80% between 1984 and 2000.

If the Downtown Plan's goals regarding increased transit use were achieved, and the proposals in the Plan regarding transit service improvements were to be fully implemented, the impacts on transit agencies would be less than described above. If the goals were achieved, transit agencies would experience greater demand than this analysis implies but overall passenger loadings would be lower (and within desirable levels) because of increased transit service availability that would come about if the proposals stated in the Plan are developed. Section VI, Mitigation, contains measures that would provide the additional transit service required to mitigate the above impacts.

Also shown in Table 8 (p. 65) is an independent analysis of the conditions that would result from adding the travel from the March 10, 1984, cumulative list to the 1984 base data, as is specified in the Transportation Guidelines. As noted above, the estimates calculated by adding the travel from the cumulative list to the 1984 base data are not specifically comparable to those from the Downtown Plan Draft EIR method. The project travel would represent about 0.3% of the total travel on transit in the 1984-plus-the-cumulative list condition. As noted above, the list-based analysis overestimates the component of travel from San Francisco, as is shown in Table 8 by higher P/S ratios for Muni in the northwest and southwest corridors and lower P/S ratios for BART transbay, SamTrans, and CalTrain than under the Downtown Plan Draft EIR method. Under the 1984-plus-the-cumulative list conditions, Muni would not meet its service goals in the northwest and southwest corridors; this would require additional service increases of 27% and 20%, respectively, to meet Muni's goal of 1.25 passengers per seat in the peak hour. The other transit agencies would meet their service goals under these conditions.

4. Pedestrian Movements

Pedestrian use of sidewalks and crosswalks near the site are primarily by office workers in the Civic Center area walking to and from their commute connections and lunch places. Observations of pedestrian use at the site found the midday peak period (11:30 AM to 1:30 PM) to be the most intensively used.[9] Pedestrian counts conducted during the peak hour of 11:45 AM to 12:45 PM found about 280 pedestrians using the Hayes Street sidewalk at the site and 370 using the Polk Street sidewalk. Peak-hour counts for crosswalks at the site are 440 for Hayes Street and 310 for Polk Street. Operating conditions for the peak-of-the-peak 15 minute period (12:00 noon to 12:15 PM) are open or unimpeded pedestrian flow for all locations except for the Hayes

Street crosswalk which experiences conditions of the lower end of the impeded range. Pedestrian operating conditions are defined in Table C-4, Appendix C.

Pedestrian peak-hour conditions are also impeded or better for crosswalks at the intersections of Polk/Market and Hayes/Larkin/Market near the site.[10]

Most of the 330 peak-hour travelers generated by the project would walk to (or from) the building from transit connections or parked cars. They would increase pedestrian flows at Polk and Hayes Streets by about 14%. Peak-hour pedestrian operations would remain in unimpeded or better conditions except for the Hayes Street crosswalk which would continue in impeded conditions. Peak-of-the-peak pedestrian service levels would remain as existing. With the project, less pedestrian-auto conflicts would occur as fewer cars would be accessing the site as a result of renewal of the existing parking facility. As the depth of the proposed loading area would be sufficient to preclude sidewalk blockage by all trucks but semi-trailers, normal loading operations would not affect pedestrian conditions on the sidewalk adjacent to the loading area. Semi-trailers would normally visit the site only during moving operations, since office and retail deliveries are typically made by single-unit or smaller trucks.

5. Traffic Impacts

The analysis of traffic impacts has been conducted on two levels; one level of analysis considered impacts at the regional screenlines, the second level of analysis considered impacts at intersections in and near the downtown.

Regional Freeway Analysis: Analysis of traffic conditions at the regional screenlines has been conducted for both the PM peak hour and the two-hour PM peak period. AM peak traffic conditions at the regional screenlines have the effect of metering the amount of traffic that reaches the downtown from outside of the City. This analysis has considered PM peak conditions. PM conditions are usually most severe on both freeways and streets with San Francisco, whereas AM peak conditions are most severe at locations outside of the City.

Traffic demand at the regional screenlines in 1984 (see Table 9, p. 72) during the PM peak hour were found to use between 90% and 100% of the available capacity on the freeways and bridges. Although the eastbound capacity of the Bay Bridge is calculated to be 9,000 vehicles per hour (vph), the 1984 peak-hour demand shown in Table 9 (p. 72), represents the effective eastbound capacity. The demand figures shown in Table 9 for 1984 for the one-hour and two-hour periods are averages of several days and, thus, values for individual days may be different than the average.

Peak-hour freeway operating conditions in 1984 were found to be generally in Level of Service D to E conditions which would indicate unstable flows in the 35 mph to 45 mph range. Table C-5, Appendix C, shows the Level of Service for freeway operations. Peak-of-the-peak conditions within the peak hour are expected to be worse than the hourly conditions because of surges in traffic demand during the peak hour. Conditions during the peak-period at the screenlines would be similar to those experienced during the peak-hour.

As shown in Table 9 (p.72) demand during the peak hour in the East Bay and Peninsula corridors would be expected to increase about 15% between 1984 and 2000. Peak-hour demand in the North Bay corridor would increase by about 6% between 1984 and 2000. The project travel demand, about 50 PM peak-hour vehicle trip ends, would represent about 0.1% of the total demand in each corridor in the Year 2000. Both the East Bay and Peninsula corridors would have excess peak-hour demand that would not be met during the peak period.[11] The North Bay corridor would have excess demand in the peak period. Excess auto demand would result in either a spreading of the demand into the hours adjacent to the peak period or in increased transit and ridesharing use should additional transit service (beyond that assumed to occur by the Year 2000) or incentives be provided.

Operating conditions at the regional screenlines would be at or near capacity in Level of Service E. Traffic flow conditions would be expected to be very unstable and could experience temporary flow interruptions throughout the peak-period. Peak-of-the-peak conditions would be prevalent during the peak hour and may extend into the peak period. The overall two-hour commute period would not be expected to increase substantially in the future. Rather, the occurrence of peak-of-the-peak conditions, now less than one hour, would most likely expand to fill the one-hour peak.

As shown in Table 9, the list-based cumulative analysis, while not comparable to the Year 2000 data, produces similar estimate of future demand. The results reflect the tendency of the list-based method to overestimate regional auto travel. The project would represent about 0.1% of the regional auto demand in this condition. The Bay Bridge and I-280 would have excess demand during the peak hour; the Bay Bridge, the Golden Gate Bridge, and I-280 would have excess demand during the peak period. The same conclusions noted above regarding future operating conditions would apply to this condition as well.

Intersection Analysis: In order to assess existing traffic conditions, peak hour counts were conducted at nearby locations. Traffic flow on Polk Street is currently about 700 vehicles in the peak hour (4:30 to 5:30 p.m.), and on

Table 9

Outbound Regional Auto Demand

Regional Auto Corridor	Capacity	1984 Demand	2000 Demand	2000 Project Percent	1984 + CUMULATIVE LIST Demand	1984 + CUMULATIVE LIST Project Percent
P.M. Peak Hour						
Bay Bridge (I-80)	9,000	8,540	9,790	0.1	9,480	0.1
Golden Gate Bridge (US-101)	7,200	6,740	7,150	0.1	7,100	0.1
US-101 (south of Harney Way)	8,000	7,390	8,400	0.1	7,800	0.1
I-280 (between Alemany Blvd. and San Jose Avenue)	8,000	7,610	8,650	0.1	8,020	0.1
P.M. Peak Period						
Bay Bridge (I-80)	18,000	17,880	19,330	0.1	18,460	0.1
Golden Gate Bridge (US-101)	14,400	13,870	14,850	0.1	15,380	0.1
US-101 (south of Harney Way)	16,000	14,200	16,530	0.1	14,870	0.1
I-280 (between Alemany Blvd. and San Jose Avenue)	16,000	13,620	15,890	0.1	17,290	0.1

/a/ Although the capacity of the Bay Bridge is calculated to be 9,000 vehicles per hour (vph), the 1984 peak-hour demand shown above represents the effective capacity.
/b/ The volumes for 1984 for the one-hour and two-hour periods are averages of several days and, thus, values for individual days may be different than the average.

SOURCE: Environmental Science Associates, Inc.

Hayes Street it is currently about 1,100 vehicles. The intersections of Hayes at Polk and Market operate at levels of service "A" during peak hours, indicating excellent conditions. The intersections of Hayes and Van Ness and Polk and Market operate at levels of service "A/B" during peak hours, very good to excellent conditions.[12]

The project would generate about 50 vehicle trips during the PM peak hour and about 70 during the PM peak period. Because the project would include only 11 parking spaces, most of the project-generated vehicle trips would originate or terminate at parking locations other than the site itself. The project would maintain the same number and general location of driveways existing on the site, so that disruption of traffic on Polk and Hayes would not be increased. Dispersion of traffic which currently uses the 64-space lot on the site would have little impact on the overall street system. For these reasons, the project would not have a noticeable effect on the two intersections mentioned above.

Project-generated traffic destined for the East Bay would most likely use the freeway ramps at Bryant and Eighth Streets and traffic destined for the Peninsula would most likely use the freeway ramps at Bryant and Tenth Streets. Freeway access to the North Bay is provided via Van Ness Avenue (U.S. Highway 101).

Traffic operations at the intersections near the two freeway ramps mentioned above and the intersection of Van Ness and Broadway are shown in Table 10 (p. 74). The intersection of Van Ness and Broadway has been analyzed because it is representative of conditions along the Van Ness corridor. The intersection of Bryant and Tenth Streets and Bryant and Eighth Streets operate at Level of Service B conditions during the PM peak hour, while the intersection of Van Ness and Broadway operates at Level of Service E. Level of Service descriptions for intersections are shown in Table C-6, Appendix C.

Peak-hour conditions would be expected to deteriorate at all of the intersections by the year 2000. Expanded areas of traffic congestion would disrupt surface Muni operations. If the mitigation measures proposed in the Downtown Plan EIR (EE.81.3) for transportation are implemented (See Mitigation Measures That May Be Implemented by Public Agencies p. 92), the intersection operating conditions would be improved.

As shown in Table 10, conditions for the Year 2000 yield worse Level of Service intersection conditions than those for the list-based analysis. While similar to the results of the Downtown Plan Draft EIR results, the list-based analysis yields lower results with the analysis of these intersections. This is due to the fact that most development proposed, approved and

under construction on the March 10, 1984, cumulative list (see Table C-2, Appendix C) is located in the eastern portion of the Downtown area (the Financial District). The list-base analysis has more adverse effects on intersections and freeway ramps in the Financial District.

Although the traffic data shown in Table 9 (p. 72) and used to calculate the V/C ratios in Table 10 are calculated on the basis of projections for the Plan, similar traffic data would be expected under the five Alternatives in

Table 10

Projected Peak-Hour Intersection Volume-to-Capacity Ratios (V/C) and Levels of Service (LOS)/a/

	1984		2000		1984 + Cumulative List	
Intersection	V/C	LOS	V/C	LOS	V/C	LOS
Bryant and Tenth Streets	0.69	B	0.79	E	0.72	C
Bryant and Eighth Streets	0.65	B	0.76	C	0.73	C
Van Ness and Broadway Streets	1.00	E	1.11	F	1.05	F

/a/ Level of Service descriptions and relationship to V/C ratios are shown in Table C-3, Appendix C of this report.

SOURCE: Environmental Science Associates, Inc.

the Downtown Plan Draft EIR. As shown in Table 7 (p. 62), regional traffic demand under Alterntive 1 would be about 34% higher than under the Downtown Plan while regional traffic demand from Alternative 4 would be about 13% lower than under the Plan. In terms of Level of Service, the Alternatives would be equivalent to the Downtown Plan.

5. Parking Impacts

The project would remove 64 off-street parking spaces which are currently provided on the site. Eleven off-street spaces would be provided in the basement level of the project building, and one off-street loading space and delivery dock would be provided at grade on Polk Street. Of the eleven parking spaces, one or more (as necessary) would be reserved for service

vehicles in order to accommodate any overflow from the loading space, one would be reserved for vanpool parking, and one would be reserved for handicapped parking. Any remaining spaces would be for the short-term use of office visitors and retail customers on a first-come first-served basis. The designation of the 11 spaces would vary somewhat with actual demand; visitor and customer short-term parking would be allowable only if all of the garage spaces were not necessary for the special users mentioned above.

The project would generate a demand for about 120 spaces, 110 for the office space and 10 for the retail space.[14] Assuming that a demand for all of the 64 existing spaces would remain, the project would result in a net deficit of about 180 off-street parking spaces. This unmet demand could be accommodated by the 450 unused off-street parking spaces found within 2,000 feet of the site.[15]

Cumulative Parking Impacts

The estimated parking demand (both long-term and short-term) from the C-3 District in 1984 was found to be about 45,300 spaces, which would occupy about 94% of the 48,000 parking spaces in and near the C-3 District.[16] The short-term parking demand, while representing about 25% of the equivalent daily demand, is about 65% of the daily vehicle travel. Although the equivalent daily demand would leave about 10% of the parking supply vacant, surges in short-term demand (more travel in one period than in another period) can cause temporary localized overloads of parking facilities within various portions of the downtown, even though parking may be available elsewhere in the downtown.

The C-3 District would generate demand for approximately 58,000 equivalent daily parking spaces in the Year 2000 under the Downtown Plan, an increse of 28% from 1984. Short-term demand would continue to represent about 25% of the total demand. The project parking demand would represent less than 0.2% of the total demand from the C-3 District. The parking supply has been assumed to be about 51,000 spaces. There would be a parking deficit of about 7,000 spaces in the Year 2000 if vehicular demand occurs as projected.

However, as shown in Table 9 (p. 72), the analysis for the Year 2000 forecasts excess auto demand in the peak hour and the peak period. If the excess demand is accommodated on transit or ridesharing, then the overall parking demand would decrease from the above estimate by about 2,300 spaces. Alternatively, if the goals of the Downtown Plan are met, total parking demand by 2000 would be about 48,100 equivalent daily spaces, an increase of 6% over 1984. If the goals were achieved, there would not be a parking deficit.

The list-based analysis shows future demand for 11,400 spaces from projects in the C-3 District, which would be a total demand of 56,700 spaces. While similar to the 58,000 space (unmitigated) demand from the Downtown Plan, the list-based demand is not comparable for the reasons stated above, in particular because the list-based analysis assumes a static modal split and thus overestimates future auto demand.

Although the parking demands discussed above are calculated on the basis of projections for the Downtown Plan, similar conditions would be expected under the five Alternatives in the Downtown Plan Draft EIR. Although not shown in Table 7 (p. 62), parking demand from the C-3 District under Alternative 1 would be about 4% higher than under the Downtown Plan, while Alternative 4 would be about 1% lower than the Plan.

7. Goods Movement

There are no on-street loading or emergency zones existing at the site. The project would provide one off-street loading space and delivery dock, accessible at grade from Hayes Street. This space would meet off-street loading requirements set forth in Section 152 of the City Planning Code and City Planning Resolution 9286. The proposed loading space dimensions of 12 feet in width and 25 feet in length with a vertical clearance of 14 feet would meet these requirements. In addition, at least one of the subgrade parking spaces would be set aside for use by service vans and small trucks delivering goods to the building.

It is estimated that about 28 truck visits would be made to the site between the weekday hours of 9:00 AM to 6:00 PM.[17] These truck visits would include commercial-plated autos, vans, pickups, single unit trucks, and semi-trailers. During peak loading hours, (i.e., 9:00 AM to 11:00 AM) up to four trucks would visit the site with accumulations of up to two vehicles at any one time. If both trucks were full-size, one would either have to return or stand illegally on-street. Under normal conditions, no double parking or traffic backups should occur due to loading operations.

The reduction in on-site parking from 64 to 11 spaces would decrease the number of vehicles entering and exiting the site, thereby reducing possible traffic conflicts and hazards to pedestrians, bicyclists and other vehicles.

8. Construction Traffic Impacts

The project would be constructed over an 18-month period, employing up to 90 construction workers at one time. If all of the construction workers drive with limited ridesharing and similar work shifts, about 80 vehicle trips would be generated during their commute period. Because construction workers tend to work earlier shifts, only a portion of their commute traffic would occur during the AM and PM peak hours. The vehicle trips generated by construction workers would not change traffic service levels on the adjacent street network. Construction worker vehicles could be accommodated in parking lots and garages near the site.

Construction truck traffic would be heaviest during the one-month period of excavation. It is estimated that during this period no more than 35 truck trips would be made daily and no more than five trips would occur during peak hours. The volume of truck traffic would not decrease service levels on streets near the site. Deliveries of construction material during other phases of construction would be limited to between the hours of 9:00 AM and 4:00 PM in order to minimize impacts on peak period traffic.

A designated access point to the site during construction will be determined upon consultation with the Department of Public Works as will a preferred hauling route for excavated material. It is anticipated that a parking lane on either Hayes or Polk Street would be closed to allow for a temporary pedestrian walkway. If the Hayes Street parking lane is closed, up to a 20% reduction in traffic capacity could occur between 4:00 and 6:00 PM, when this lane is normally open to traffic. Closure of the parking lane on Polk would not result in any change in roadway capacity. Assuming a 5-foot temporary pedestrian walkway width, pedestrian service levels would decrease to 'B'; (impeded flow) during both peak hours and peak-of-the-peak times on Polk Street and during the peak-of-the-peak on Hayes Street.

Within two blocks of the site, there is one project that is currently under construction: 25 Van Ness Avenue with 101,800 square feet of existing buildings and 36,400 square feet of retail space. This project involves the renovation and conversion of an existing building. The major trip-generating construction phases of 25 Van Ness (i.e., gutting of interiors) are expected to be completed by the time construction would begin on the proposed project.[18]

Footnotes

1. San Francisco Department of City Planning, Transportation Guidelines for Environmental Impact Review: Transportation Impacts, September 1983. This document describes the procedure used to calculate travel demand from the project. Trip generation rates of 18.1 person trip-ends (pte) per 1,000 gross sq. ft. of office space and 150 pte per 1,000 gross sq. ft. of retail space were used to generate travel from the project. The two trip generation rates are for independent land uses. When used to generate travel from more than one land use on the same site, the rates may overestimate total travel to the site since a portion of the travel from each of the land uses may occur between land uses on the site and not leave the site. Such trips are referred to as "linked trips." The September 1983 Transportation Guidelines are on file and available for public review at the Office of Environmental Review, 450 McAllister Street, Fifth Floor.
2. The percentage of travel occurring in the peak period and the peak hour are from the Transportation Guidelines (see Note 3). Total travel during each of the periods has been adjusted to show only outbound (leaving the downtown area) travel. The outbound travel consists of all of the work-related travel and half of the other (non-work) travel.
3. San Francisco Department of City Planning, Office of Environmental Review, Draft Environmental Impact Report for the Downtown Plan, EE81.3, March 16, 1984. This document is an analysis of projected growth in the C-3 District to the year 2000 under the Downtown Plan and five alternatives. The transportation analysis in the Draft EIR includes projections of future modal splits for work and other (non-work) travel for the PM peak period, peak hour and daily time periods. This document is on file with and available for public review at the Department of City Planning, 450 McAllister Street, Fifth Floor.
4. The Downtown Plan Draft EIR contains about 50 pages of text devoted to the description of transportation impacts in the greater downtown area, as well as an additional 30 pages of text describing transportation mitigation measures. The information in this EIR on the 101 Hayes Street project is not intended to be a comprehensive summary of the transportation analysis in the Downtown Plan Draft EIR, but summarizes portions relevant to the 101 Hayes Street project and its contribution to cumulative impacts. For details and assumptions used to arrive at the data and results presented in the Downtown Plan DEIR, see Sections IV.E, Transportation Setting and Impact, and V.E., Transportation Mitigation, and Appendix J, Transportation and Circulation Analyses and Methodologies, of the Downtown Plan Draft EIR, which are incorporated by reference into this report and summarized in the text as appropriate.

5. Data are from Traffic Survey Series A-48 and MA-60, Spring 1977 and Spring 1983, Metropolitan Transportation Commission.
6. The analysis of historic trends in travel patterns is from the following sources: Metropolitan Transportation Commission, Travel Observations of the Bay Bridge Corridor, October 21, 1981. Homburger and Dock, Trends in Traffic Patterns at the Bay Bridge and Caldecott Tunnel, U.S. Department of Transportation, DOT-BIP-WP-32-3-77, July 1977; telephone survey of 500 drivers conducted in April 1980 by Golden Gate Transit, data supplied by Alan Zahradnik, Transportation Planner, on February 16, 1983; Office of the Auditor-Controller, Comparative Record of Traffic for the Month of November, May 27, 1937 through November 30, 1982, Golden Gate Bridge, Highway and Transportation District; San Francisco Municipal Railway Planning Division, Projections of Future Muni Demand and Vehicle Requirements, October 1982; San Mateo County Transit District, Sam Trans Five-Year Transportation Development Plan: 1983-1988, April 1983; California Department of Transportation, CalTrain Caltrans/Southern Pacific Peninsula Train Service Five-Year Plan 1983-1988, July 1983; and Traffic volume counts from Department of Public Works, Bureau of Engineering, Division of Traffic Engineering and from 1983 San Francisco Cordon Count, JHK and Associates, July 1983.
7. See Downtown Plan Draft EIR, pp. II.9 - II.11, for a comparison of the cumulative list projections with those of the Downtown Plan Draft EIR.
8. San Francisco Municipal Railway, Short-Range Transit Plan 1983-1988, July 1983. Bay Area Rapid Transit District, Short Range Transit Plan for the Five-Year Period July 1983 Through June 1988, August 1983.
9. Pedestrian counts at the site were conducted by Planning Analysis & Development on Tuesday, October 11, 1983.
10. PRC Voorhees, Report on Transportation Impacts for the Proposed 101 Hayes Office, October 1982, and Transportation Impacts of Fox Plaza Phase II, June 1980.
11. Table IV.E.4, p. IV.E.36, of the Downtown Plan Draft EIR contains discussion of the implications of excess demand at the regional screenlines.
12. Traffic counts conducted by PRC Voorhees, Report on Transportation Impacts for the Proposed 101 Hayes Office Building, October 1982. This report is on file at the Office of Environmental Review.
13. Ibid. Based upon most recent (1978 to 1981) peak hour counts conducted by Caltrans and capacity levels from the Highway Research Board's Highway Capacity Manual, 1965, page 196.
14. Parking demand is based on one employee per 250 gross square feet (gsf) of office space, one employee per 350 gsf of retail space, 10% absentee rate for employees, 22% auto drivers, 22% office visitor spaces per employee space, 2.1 retail customer spaces per 1,000 gsf, and a short term turnover reduction rate of 30%. Sources of information are: PRC

Voorhees, "Preliminary Environmental Assessment of Transportation Issues for 101 Hayes Street Project," April 27, 1982 and Highway Research Board, Parking Principles; Special Report 125, Washington, D.C., 1971.

15. Parking survey conducted by PRC Voorhees in September, 1982 and presented in greater detail in PRC Voorhees, Report on Transportation Impacts for the Proposed 101 Hayes Office Building, op. cit.
16. The parking survey data and other supporting calculations and data used in the Downtown Plan Draft EIR transportation impact analysis are on file and available for public review at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, Fifth Floor.
17. Wilbur Smith & Associates, San Francisco, Center City Pedestrian Circulation and Goods Movement Study, prepared for the San Francisco Transportation Policy Group, September 1980, Table 4.
18. Fuller Commercial Brokerage Company, telephone conversation, December 12, 1983; and visit to 25 Van Ness construction site, September 25, 1984.

E. Cumulative Air Quality

Cumulative downtown office and retail development (including the project) would impact air quality in three ways: pollution during construction, combustion of natural gas for space and water heating; and traffic. Transportation sources would account for most of the cumulative emissions.

Construction activities would generate pollution from equipment exhausts and would raise dust and other particulate matter. Except for persons with respiratory problems, this dust is more a nuisance than a hazard, as the particles rapidly settle out of the atmosphere. Diesel-powered construction equipment would emit nitrogen oxides, carbon monoxide, sulfur oxides, hydrocarbons and particulates.

Operation of proposed office and retail projects, including the 101 Hayes Building, would result in direct emissions of carbon monoxide and other pollutants from the combustion of natural gas for water and space heating. Because natural gas is a relatively clean burning fuel, no visible plume would occur. Project-generated exhaust gases would be emitted at roof level and would be diluted to concentrations below the ambient air quality standards before reaching ground level.

Estimated daily emission of pollutants in 1990 from project traffic and from cumulative development traffic (based on the March 10, 1984 list of Cumulative Office Development in Downtown San Francisco) are shown in Table 11 (p. 82). These emissions are compared to projected emissions by the Downtown Plan Draft EIR for C-3 District development, and to total emissions projected for the entire Bay Area by the 1982 Bay Area Air Quality Plan. The project would contribute about 0.4% to the total amount of air pollution generated by cumulative projects on the March 10, 1984, list.

Motor vehicle trips associated with downtown development would emit more nitrogen oxides (NO_X) than hydrocarbons (HC), both of which are chemical precursors of ozone, while emissions from building natural gas combustion would consist primarily of NO_X. On the basis of the Livermore Regional Air Quality Model (LIRAQ) ozone simulations conducted for the 1982 Bay Area Air Quality Plan, NO_X emissions in excess of HC emissions could lead to a slight decrease in peak ozone concentrations in the Bay Area. This relationship between NO_X and HC emissions would hold both under the cumulative list scenario and the Downtown Plan scenario shown in the table. Thus, emissions of HC and NO_X generated by the project and by cumulative development would not increase the Bay Area ozone concentrations which would otherwise occur.

Table 11
PROJECTED DAILY POLLUTANT EMISSIONS

	Emissions (tons per day) /1/					
			Downtown			
		Cumulative	Plan/3/		Bay Area/4/	
Pollutant	Project 1990	List 1990/2/	1990	2000	1990	2000
Carbon Monoxide	.071	17.0	6.8	6.6	1,952	1,883
Hydrocarbons	.006	1.4	0.6	0.6	428	428
Nitrogen Oxides	.007	1.8	0.8	0.8	558	610
Sulfur Oxides	.001	0.2	0.1	0.1	194	233
Particulates	.011	2.7	1.1	1.3	562	649

/1/ Project, Cumulative List, and Downtown Plan emissions calculated using BAAQMD, EMFAC6C vehicular emission factors. Emissions of CO, HC, and NO_X include an assumed six minutes of idling time per vehicle trip. Emissions of TSP include dust entrained from roadway surfaces.

/2/ Incremental emissions of downtown-area development based on list of projected Cumulative Office Development in Downtown San Francisco as of March 10, 1984 (see Appendix C, Table C-2 of this report).

/3/ Incremental emissions of C-3 District development, per Downtown Plan Draft EIR, Table IV.I.2, p. IV.I.12.

/4/ Accumulative total emissions of Bay Area development, per ABAG, BAAQMD, MTC, 1982 Bay Area Air Quality Plan, pp. 42, 53, and 112.

Source: Planning Analysis & Development and Rick Pollack, EIP Corporation

It is possible, however, that excess NO_X emissions could increase ozone and/or nitrogenous oxidant concentrations further downwind, outside the Bay Area. In addition, incremental NO_X emissions generated by the project and by cumulative development could lead to violations of the NO_2 standard with concomitant health effects; could reduce visibility; and could increase acid rain further downwind to a relatively small extent due to the small magnitude of the increase and to dilution over time and distance.

CO concentrations are predicted to be less in 1990 and subsequent years than shown for 1984. In 1990 traffic volumes in the downtown area would increase by about 8%, over 1984 volumes. However, in 1990 the average vehicle is expected to emit 32% less CO than in 1984 due to ongoing state and federal emissions controls. The projected effects of state and federal emission controls on new vehicles (and the retirement of older, polluting vehicles) would more than offset the increases in traffic volumes and traffic congestion.

The reduction in the amount of on-site parking would have a small beneficial effect on local street CO levels. Cumulative traffic impacts (based on the March 10, 1984 list) were estimated for worst-case conditions (poor dispersion meteorology) and are compared with the ambient standards in Table 12. These concentrations are also compared in the table to concentrations projected for the C-3 District in the Downtown Plan Draft EIR. The results indicate that the state and federal 8 hour average CO standards, set at 9 ppm, are currently violated at Van Ness/Broadway and Bryant/Eighth Street. No excesses of the state one-hour average CO standards is projected for any of the three locations analyzed for 1990 or 2000. The state and federal 8-hour average CO standards are projected to be violated in 1990 at Bryant/Eighth. The 101 Hayes Building would contribute less than 1% to the overall CO concentrations at these intersections.

Emissions of TSP generated by the project and by cumulative development would increase TSP concentrations, which could increase the frequency of TSP standard violations in San Francisco, with concommitant health effects and reduced visibility.

The BAAQMD has recently initiated a redesign of the air quality modelling process. The projected excesses in CO in the EIR are based on this model and not on monitoring at these intersections. The model used to make these projections might not be accurate to within the percentages of the excesses. Therefore, until additional CO "hot spot" monitoring is performed to validate the model projections, a final determination of whether cumulative downtown development, including the project, would conflict with the objectives of the 1982 Bay Area Air Quality Plan regarding CO cannot be made with certainty. However, as the model as currently designed does project excesses, Chapter VI of this EIR (pg. 92) has recommended a finding of significant air quality impacts.

TABLE 12
PROJECTED WORST-CASE CURBSIDE CARBON MONOXIDE CONCENTRATIONS

Intersection	Averaging Time	Concentrations (pm)[1] 1984	Cumulative List 1990[2]	Downtown[3] Plan 1990	Downtown[3] Plan 2000
Tenth & Bryant	1-hr.	11.6	8.8	8.8	8.2
(U.S. 101 SB)	8-hr.	9.8	7.2	7.2	6.6
Bryant & Eighth	1-hr.	16.7	12.5	12.5	11.3
(I-80 EB)	8-hr.	13.0	9.6	9.6	8.6
Van Ness & Broadway	1-hr.	16.6	8.8	8.8	18.2
	8-hr.	13.6	7.2	7.2	6.6

/1/ Calculations for all four scenarios were made for worst-case (poor dispersion) meteorology, using the modified linear rollback method. CALINE 3, a dispersion model recommended by the California Air Resources Board was used to calculate the contribution of the elevated freeway to ground level CO concentrations at Bryant/Eighth. Background concentrations were calculated to be 7.3 ppm for one hour and 5.6 ppm for eight hours in 1984, 5.4 ppm for one hour and 4.1 ppm for eight hours in 1990 and 4.8 ppm for one hour and 3.7 ppm for eight hours in 2000. No excesses of ambient standards are projected to occur in 2000. The one-hour state standard is 20 ppm, the one-hour federal standard is 35 ppm, and the eight-hour state and federal standard is 9 ppm. Excesses beyond established State and Federal levels have been underlined.

/2/ Based on list of projected Cumulative Office Development in Downtown San Francisco as of March 10, 1984.

/3/ Based on growth projection methodology contained in Downtown Plan Draft EIR, Table IV.I.3., page IV.I.16.

Source: Planning Analysis & Development and Nick Pollack EIP Corporation

Emissions of SO_X generated by the project and by cumulative development would probably not bring San Francisco's SO_2 concentrations significantly closer to violating the standard.

The 1982 Bay Area Air Quality Plan[1] found that ozone would continue to be a regional problem in the future, and that CO and TSP would continue to be problems on a local scale (although not in San Francisco), unless additional pollution control strategies were adopted. The project would not directly conflict with those strategies, and by itself would have no measurable impact on citywide or regional concentrations, or the frequency of standard violations. However, it could be incrementally impede the objectives of the Plan by generating additional pollutant emissions in San Francisco and elsewhere in the air basin.

The project, and other downtown development on the cumulative list or under the Downtown Plan, would not directly conflict with the pollution reduction strategies recommended by the 1982 Bay Area Air Quality Plan. These strategies consist primarily of HC and CO emission controls on stationary sources and motor vehicles, and transportation improvements, and are aimed at attaining the federal ozone and CO standards. In addition, emissions associated with the project and with other downtown development are not projected by this EIR or by the Downtown Plan Draft EIR to increase ozone concentrations or to result in violations of CO standards, and thus would not indirectly conflict with the objectives of the 1982 Bay Area Air Quality Plan.

Alternative 1 to the Downtown Plan (covered in the Downtown Plan Draft EIR) would generate about 38% more emissions in 2000 (from development between 1990 and 2000) than would the Downtown Plan. Alternative 4 would generate about 7% less emissions than would the Downtown Plan. Emissions generated by Alternatives 2, 3, 5 would fall within this range. The types of air quality impacts under these alternatives would be the same as those under the Downtown Plan; their magnitudes would vary in proportion to their differences in emissions.

The pollutant emissions and CO concentrations shown in Tables 11 and 12 were projected for 1990 on the basis of two different sets of future growth assumptions, with differing results. In one case, a list of specific projects proposed, approved, and under construction was used (the list of Cumulative Office Development in Downtown San Francisco, March 10, 1984). In the other case, the employment growth trend approach of the Downtown Plan EIR was used. In both cases, the method for the air quality analyses was identical. However, the results using projected cumulative development are

not directly comparable with those from the Downtown Plan DEIR for several reasons:

First, it is reasonable to assume that the projected cumulative development on the list would be completed and occupied sometime between 1990 and 2000, rather than in either of those two analysis years which were used in the Downtown Plan Draft EIR. The pollutant emissions and CO concentrations were calculated for 1990 using the cumulative list, even though those projects are not expected to be completed until the mid-1990's, in order to provide the possibility of some comparison with the Downtown Plan Draft EIR results. However, this has the effect of artificially increasing the cumulative list results, because average-vehicle emission rates will decline with time, as a result of federal and state controls.

Second, the transportation analysis used for the Downtown Plan Draft EIR differs from that used for the cumulative list, as described in the previous Transportation Section of this EIR. Briefly, these differences include the fact that a cumulative list-based analysis assumes that the same proportion of new employees would commute by private auto as is currently the case. In contrast, the Downtown Plan Draft EIR analysis projects a shift of commuters from driving alone to carpool and transit, because commute routes such as the Bay Bridge are already at or near capacity and could not accommodate all of the vehicles that would be used if the proportion of persons driving alone to work remained constant.

Other reasons for the differences include the use in the cumulative list analysis of a constant regional distribution of trips, whereas the Downtown Plan Draft EIR forecasts a declining percentage of new employees residing in San Francisco, and the lack in the cumulative list approach of discounting factors to account for trips between individual projects within the Downtown.

Thus, total regional vehicle-miles-travelled and the resulting pollutant emissions projected using the cumulative list approach are considered artificially high. On a local intersection basis, traffic volumes and the resulting CO concentrations might or might not be higher with the cumulative list approach, depending on the particular location. This is because the cumulative list method does not distribute traffic on all the same streets in the same proportions as does the Downtown Plan Draft EIR method.

Footnotes

1. ABAG, BAAQMD, and the Metropolitan Transportation Commission (MTC), 1982 Bay Area Air Quality Plan, 1982.

F. Growth Inducement

Two major determinants of a project's growth-inducing impacts are the land-use succession process and secondary employment created by the multiplier effect. Secondary employment is discussed in the Employment, Housing and Fiscal Factors section, p. 20.

1. Land Use

In economic terms, land will be developed to its highest and best use, which depends upon its location, zoning regulations, adjacent land uses, and market demand. Highest and best use is defined as that land use which will bring the highest price or rent, given current market conditions, and which optimizes the floor area, density and height permitted for the site.

The existing parking lot does not characterize the highest and best use of the site because it does not bring the highest potential rent to its owners; the Planning Code allows for a land use of greater value (i.e., an office building).

If the proposed project is successfully marketed, it could have growth-inducing impacts on the neighborhood by increasing land values and thereby encourage similar projects on underdeveloped land near the site. However, the project may overreach the site's highest and best use if office vacancy rates persist. If the office and retail space is not rented out, the project would not contribute to the land use succession process in the near future, but probably would cause irreversible land use changes in the long run.

Other office development in the area consists of three projects recently completed or currently under construction at 25 Van Ness Avenue (82.603E), 1170 Market (DR79.24), 1155 Market/8th (EE81.25) and 10 U.N. Plaza (DR79.133), and an office building at 1145 Market (81.549ED) that was approved in 1984. If all these projects are approved and constructed, they would provide about 422,050 total net new gross square feet of office space. All of these projects are on the March 10, 1984, cumulative list which was used for the cumulative analysis.

The growth of office space would continue the trend of regional growth in service sector employment. The effects of this growth are diffused throughout the Bay Area and cannot be accurately quantified. The increase in downtown office space and employment would contribute to the continued growth of local and regional markets for goods, services and housing.

Residential development recently completed or under construction in the area include Opera Plaza on Van Ness between Golden Gate Avenue and Turk Street (468 units), and 230 residential units in the Redevelopment Area, one-third mile northwest of the project site.

The area most likely to be affected by increased land values would be those parcels south of the site which are now part of the same zoning, height and bulk district. These parcels are currently used for parking or low-rise commercial and residential buildings which do not optimize the allowable floor area or height permitted in the area. Although it is difficult to accurately predict the long-term effects of the proposed project on nearby land uses, an increase in marketable highrise office buildings might encourage other property owners to upgrade or replace their buildings in expectation of selling or renting at higher prices than can be obtained with current land uses. Higher property values and rents could make certain land uses such as surface parking or low-rise buildings unattractive investments or holdings. In this way, existing residents and businesses could be displaced by new commercial developments. To the extent that the project increases the demand for housing in the City, new San Francisco residents would increase demand for commercial, social and municipal services.

The project would be located in an already developed urban area, and would require no new construction, extension or expansion of public services or utilities.

These growth-inducing impacts would be long-term and cumulative, and the proposed project would contribute to, rather than be the sole cause of, such trends.

V. MITIGATION MEASURES

In the course of project planning and design, measures have been identified that would reduce or eliminate potential environmental impacts of the proposed project. Some of these measures have been or would be adopted by the project sponsor, project architect and/or contractors. Mitigation measures included as part of the project and presented in the Initial Study are reproduced below. Some mitigations may be implemented by public agencies. The City Planning Commission could require that some or all of these measures be included as conditions of project approval, if found to be warranted. Each mitigation measure and its status is discussed below.

Mitigation Measures to be Included in the Project

Land Use

1. Landscaping on sidewalks, terraces, roofs and balconies would add greenery to an area that contains little or none.

Wind

1. For maximum useability, the fourth-floor terrace on the west side of the building would be protected from vertical winds by means of a canopy, trellis, protected seating areas, or enclosure as an atrium.

Housing

1. The project sponsor would contribute to the City-Wide Shared Appreciation Mortgage Revenue Bond Program under the San Francisco Office/Housing Production Program (OHPP), if and when this program continues. This program would provide permanent mortgage financing for individuals and families whose incomes range from 80% to 150% of the median income of the San Francisco Standard Metropolitan Statistical Area.

2. If the City-Wide Shared Appreciation Mortgage Revenue Bond Program is not continued, the project sponsor and/or successive project owners shall meet a requirement of 112 housing credits in a manner and within a time frame which would comply with the Office Housing Production Program (OHPP) Interim Guidelines for Administering the Housing Requirements Placed on New Office Development, adopted by motion by the City Planning Commission on January 26, 1982. The provisions of the Interim Guidelines are incorporated herein by reference. By complying with the Commission's Office Housing Production Program Guidelines, the project will reduce project-specific contributions to cumulative housing impacts in San Francisco to an acceptable level. The Commission has no jurisdiction to require housing construction in other localities.

Noise

1. The sponsor would have a detailed noise analysis carried out by a qualified acoustical consultant before construction and would follow the consultant's recommendations for noise reduction and insulation features to be incorporated in the design.

2. During construction, the sponsor would require the contractor to use state-of-the-art muffling techniques for noise equipment.

Land

1. The sponsor agrees to follow the recommendations of a California-licensed soils engineer or geologist regarding excavation and foundation design.

Hazards

1. An evacuation and emergency response plan would be developed by the sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services to ensure coordination between the City's emergency planning activities and the project's plan to provide for building occupants in the event of any emergency. The project's plan would be reviewed by the Office of Emergency Services and implemented by building management before issuance by the Department of Public Works of final building permits.

Cultural

1. Should evidence of cultural or historic artifacts of significance be found during excavation, the Environmental Review Officer and the president of the Landmarks Preservation Advisory Board would be notified. The project sponsor would select an archaeologist or other expert to help the Office of Environmental Review determine the significance of any find and whether feasible measures, including appropriate security measures, could be implemented to preserve or recover such artifacts. The Environmental Review Officer would then recommend specific mitigation measures, if necessary, and recommendations would be sent to the State Office of Historic Preservation. Excavation or construction which might damage the discovered cultural resources would be suspended for a maximum of four weeks, to permit inspection, recommendation and retrieval (if appropriate).

Transportation

1. The sponsor agrees to encourage short-term use of parking spaces by not leasing out the spaces and by establishing parking rates that do not level off over time. Of the 11 spaces in the garage, one would be

reserved for a loading van and one would be reserved for a vanpool vehicle and one for handicapped parking; thus, only eight short-term parking spaces would be available.

2. The sponsor would perform a post-occupancy survey of transit use and needs in accordance with Department of City Planning guidelines.

3. During the construction period, construction truck movement would be mitted only between 9:00 AM and 4:00 PM to minimize peak-hour traffic conflicts. The project sponsor and construction contractor would meet with with the Traffic Engineering Division of the Bureau of Engineering of the Department of Public Works, with Muni and with the Office of Environmental Review to determine feasible traffic mitigation measures to reduce traffic congestion during construction of this project and other nearby projects.

4. A member of the building management staff would be designated as a "transportation broker" to coordinate measures that are part of a transportation management program such as: encouraging a flexible time system for employee working hours (to be developed by project tenants in consultation with the Department of City Planning) to reduce peak period congestion by a planned spreading of employee arrivals and departures; encouraging transit use through the on-site sale of BART and Muni passes to employees; and encouraging employee carpool and vanpool systems in cooperation with RIDES for Bay Area Commuters by providing a central clearinghouse for carpool and vanpool information. This measure would reduce the transportation impacts of the project.

5. To minimize cumulative traffic impacts due to lane closures and street excavation during construction, the project sponsor would coordinate with construction contractors for any concurrent nearby projects that are planned for construction, or later become known.

6. The project would be subject to the development fee imposed under Ordinance No. 224-81. Should Ordinance 224-81, which requires the sponsor to contribute funds for maintaining and augmenting transportation services in an amount proportional to the demand created by the project, be declared invalid by the courts, the project sponsor has agreed to participate in any subsequent equivalent mitigation measures adopted in lieu thereof that are equitable and legal, which the City adopts to apply to all developments similarly situated.

7. If required as part of an overall plan developed by Muni for the site block, the project would be designed to affix eyebolts or similar fix-

tures to the building for the suspension of Muni overhead trolley wires.

8. The project sponsor would provide secure bicycle parking facilities to encourage the use of bicycles by employees and messengers.

Air Quality

1. During excavation, unpaved demolition and construction areas would be watered down to reduce air-borne dust. The sponsor would require this in the construction contract.

Cumulative Air Quality

1. Strategies proposed for mitigating cumulative traffice congestion would also reduce vehicle emissions.

Mitigation Measures That May be Implemented by Public Agencies

Transportation

1. The City could adopt and implement the transportation improvements described in the Downtown Plan. Should the Downtown Plan not be implemented, the City could act to implement the transportation mitigation measures described in Section V.E., Mitigation of the Downtown Plan Draft EIR. The Downtown Plan is presently under review: action on the Plan is expected by the City Planning Commission during late 1984. If approved by the Commission, some of the Implementing Actions would need approval by other decisionmakers, as described in Section V.E. of the Downtown Plan Draft EIR.

Air Quality

1. Request the BAAQMD to install CO "hot spot" monitors and traffic counters at locations projected to exceed CO standards (such as Brannan and Sixth Streets), to validate the current MLR model's projections. Following such a validation, if any locations still are projected to exceed CO standards after 1987, the BAAQMD, ABAG, and MTC would be required by federal law to develop a CO control plan for San Francisco, to attain the standards by 1987 and maintain them thereafter. Such a planning effort should be conducted in association with the City and County of San Francisco.

Growth Inducement

1. In order to discourage land-use succession in the project area as described in Growth Inducing Impacts, p. 87 , the Board of Supervisors and the Mayor could reclassify the zoning of the site area to reduce the allowable building height and bulk, and the land use intensity.

VI. ADVERSE IMPACTS THAT CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED

The following are suggested significant impacts subject to final determination by the City Planning Commission as part of their certification process. Chapter VI. of the Final EIR will be revised, if necessary, to reflect the Commission's findings.

This chapter covers impacts that could not be eliminated or reduced to an insignificant level by mitigation measures included as part of the proposed project, or other mitigation measures that could be implemented, as discussed in Chapter V, Mitigation Measures, p. 89.

Cumulative Transportation

The office project together with other projects under review, approved or under construction in the downtown would add to cumulative traffic increases south of Market Street and cumulative increases in passenger loadings on BART, Muni and other transit systems.

Air Quality

The office project in conjunction with cumulative air quality impacts of other projects may contribute to excess CO standards at the Bryant & Sixth intersection in 1990.

VII. ALTERNATIVES TO THE PROPOSED PROJECT

Decision makers could approve one of the following alternatives if they thought that the alternative was more appropriate for the site, in spite of the sponsor's reasons for rejecting the alternative.

A. No Project

If this or another similar project were not built, the parking lot would remain on the site, and none of the potential impacts associated with the project would occur. Long-term parking for 64 cars would remain. This use of the site would not respond to City policies encouraging the removal of long-term parking from the C-3-G (Downtown General Commercial) District.

About 450 outbound PM peak trips (including 115 vehicle trips and 100 Muni) and an increased parking demand would not be generated. Vehicular and pedestrian safety would continue to be affected by cars entering and exiting the parking lot. Projected cumulative peak hour traffic and transit impacts of downtown commercial development would be 0.7% less without the project.

Views towards the Opera House and City Hall from nearby high-rise buildings would not be partially reduced. Wind conditions would be unchanged.

No office or retail space would be provided, and about 525 primary and 480 secondary jobs would not be accommodated on-site. The project's impact on housing would not occur and retail services would not be provided for either the neighborhood or greater San Francisco.

The project sponsor has rejected this alternative because it would not provide a return on capital invested and would not satisfy the demand for office space in central San Francisco. As the maximum allowable floor area would not be developed, this alternative would be an economic underuse of the site.

B. Compliance with The Downtown Plan[1]

1. Project Description

This alternative would be a nine-story building which would contain about 100,449 gsf of floor area, as defined in Section 102.8 (b) 9 (A) of the proposed amendments to the City Planning Code (June 1984). This results in a floor area ratio (FAR) of 7.5 to 1. Transfer development rights would be required, as the Plan Atlternative exceeds the proposed FAR of 6.0 to 1.[2] The alternative design would be similar to the project although reduced in height and designed with smaller terraces and no setbacks. Table 13 (p. 95)

Table 13
Comparison of the Project to The Downtown Plan

	Project	Alternative	Downtown Plan
Zoning Designation	C-3-G	C-3-G	C-3-G
Floor Area Ratio	10:1	7.5:1	6:1[2]
Height	160'	120'	120'
Bulk[1]			
Maximum Length	148'	148'	No bulk
Maximum Diagonal	192'	192'	limitation
Building Area			
Retail	6,000	6,000	Ground floor
Office	126,000	100,449	-
Gross Floor Area (Current Code)	132,000	111,227	-
(As defined in Downtown Plan)	N/A	100,449	80,400
On-Site Residential	0	0	FAR bonus if included
Parking Spaces	11	11	No requirement
Open Space (sq.ft)			
Rear Yard	840	480	
Terraces	378	378	
Roof	2145	2145	
Total Open Space	3363	3003	
Net Useable Open Space as defined under the Downtown Plan	2145	2145	2145

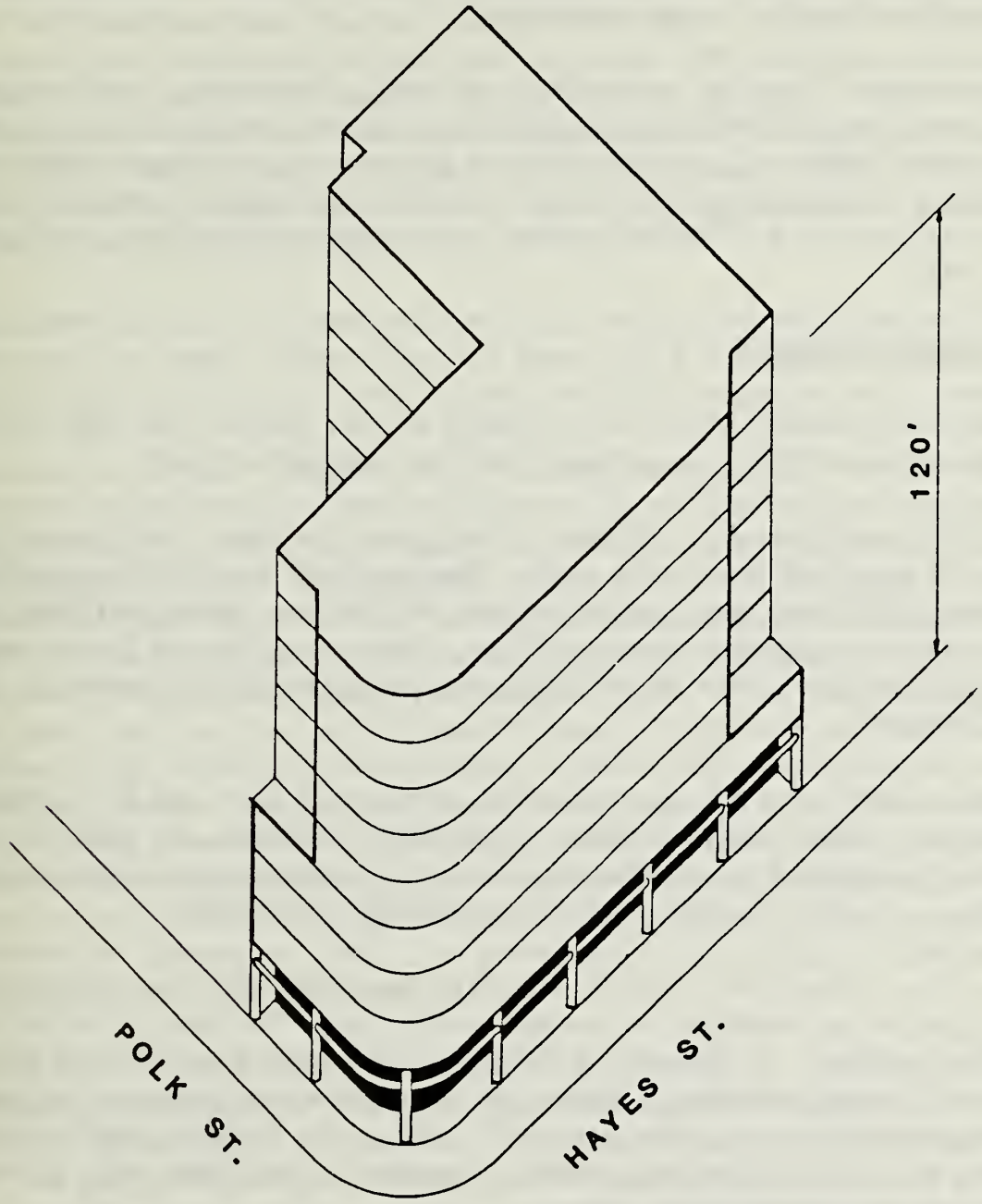
Footnotes to Table 13

1. These dimensions apply to the building portion above 80 feet, as required by Section 135 of the City Planning Code.
2. Base FAR. Additional FAR permitted through TDR up to height and bulk limit on-site.

Source: Planning Analysis & Development

figure 12

ALTERNATIVE B
Compliance with The Downtown Plan



compares this alternative with the proposed project and the requirements of the Downtown Plan and Figure 12 illustrates the building.

The building height would be 120 feet as the site area would be reclassified to a 120-X Height and Bulk District. The ground floor would contain 6,000 gross square feet of retail space. A total of 100,449 gross square feet of office space would be located on floors two through nine. Eleven parking spaces would be provided in the basement.

The building would include two outdoor terraces. The fourth level terrace would be incorporated into the northwest corner of the building on Hayes Street and the fifth level terrace would be placed at the southeast corner of the building on Polk Street. The roof area will incorporate useable open space in the form of a 2,145 gsf garden restaurant in compliance with the Downtown Plan.

2. Environmental Impacts

This alternative would result in a building 40 feet shorter and with 20,773 gross square feet of floor area fewer than the proposed project.

The building would be 60 or 70 feet higher than the four- and five-story buildings in the block and to the north. The height of the building would be approximately 270 feet less than the nearby 100 Van Ness Avenue building and 200 feet less than the Fox Plaza building. From Civic Center Plaza, more open views of the sky would be available with this alternative than with the proposed project.

The project would block sun access to some portions of Hayes and Polk Streets which are not already shaded by existing adjacent highrises. No sidewalks or open space designated for mandatory sunlight in The Downtown Plan or any other parks or lunch time malls would be shaded by the project.

Downtown Plan pedestrian comfort policies state that building forms which would minimize the creation of surface winds near the base of buildings should be promoted. In general, a building form should not be used which creates wind speeds in excess of eleven mph in areas where people are walking and seven mph where people are sitting.[3] While the building would reduce windspeeds at several locations, existing speeds exceed eleven mph in many instances and would continue to do so.

The wind impacts with this alternative would be less than with the proposed project, as the shorter building would intercept less wind.[4] The sponsor has chosen to utilize a single large plane surface which will not intercept wind

velocity. If the west facade of the building were broken into two planes, two small wind pressure areas (versus one large one) would occur.[5] The sponsor has chosen to place a pedestrian arcade adjacent to the retail uses on the ground floor. This would provide protection for pedestrians during inclement weather.

The designated useable open space designed for the roof top will provide a sunny wind-sheltered area for the enjoyment of city views and for relaxation. The area will be landscaped and have at least 90% exposure to sunlight between 11 A.M. and 2 P.M. between spring and fall equinox. Shadows created by Fox Plaza and 100 Van Ness will necessitate the placement of the open space toward the central roof area. In order to comply with the Downtown Plan, the roof open space would have to include design features which shelter the area from prevailing winds.

The proposed outdoor terraces and rear yard would provide 858 square feet of additional open space. This additional space would not meet the requirements of the Code as useable open space unless additional measures were taken.

According to the San Francisco City Planning Commission's "Office/Housing Production Production," (OHPP) formula for computing housing impacts, the Downtown Plan alternative would generate a demand for 89 residential units in San Francisco, based on 100,449 gross square feet of office space.[6] Instead of providing these units on-site, the project sponsor would contribute to the City-Wide Shared Appreciation Mortgage Revenue Bond Program under the San Francisco Office/Housing Production Program (OHPP), if and when this program continues. If the City-Wide Shared Appreciation Mortgage Revenue Bond Program is not continued, the project sponsor and/or successive project owners shall meet a housing requirement of 89 housing credits in a manner and within a time frame which would comply with the Office Housing Production Program (OHPP) Interim Guidelines for Administering the Housing Requirements Placed on New Office Development, adopted by motion by the City Planning Commission on January 26, 1982. The provisions of the Interim Guidelines are incorporated herein by reference.

Growth-inducing impacts of this alternative would be less than with the proposed project because there would be less square footage and a reduced amount of office space. In addition, this alternative would be 40 feet lower than the proposed project. Pressure on land values would be reduced, especially for older buildings in the immediate vicinity which are not built to the proposed maximum FAR of 6:1. The demand for goods and services by on-site residents could have a growth-inducing impact. At the present time, many commercial facilities are available in the immediate vicinity, especially along Market Street and Van Ness Avenue.

The daytime population density in the area would be less than with the proposed project. Approximately 330 permanent jobs would be accomodated at the site, or 150 less than with the proposed project. These jobs would be in the same sectors as those of the proposed project. Fewer construction jobs would be provided due to the smaller size of the project. The project's full assessed (or market) value would also be reduced which would result in reduced non-bond property tax revenues generated by this alternative versus the proposed project.

With this alternative, daily trips would be 15% less than with the proposed project; peak hour trips would be 15% less. Trip generation for this alternative is shown in Table 14 (p. 100). One off-street loading space would be provided at grade with access from Polk Street. This space would meet the requirements for all of the proposed building uses, as stated in Table 23 of The Downtown Plan. In addition, eleven parking spaces would be provided on-site.

Cumulative transportation and air quality impacts of projects proposed in the greater downtown area would be essentially the same with this alternative as with the proposed project, as the project's relative contribution would change during the peak hour from 0.7% to 0.6%.

The project sponsor has rejected this alternative on the premise that the project already responds to many recommendations contained in the Downtown Plan, such as ground floor retail use, a pedestrian arcade and setbacks. The sponsor also believes that this alternative would be an economic under-use of the site.

TABLE 14

TRIP GENERATION FOR ALTERNATIVE IN COMPLIANCE WITH THE DOWNTOWN PLAN

Land Use	Quantity	Trip Generation Rates[1] Daily	Peak Hour	Peak Period	Number of Trips Daily	Peak Hour	Peak Period
		(per 1000 gross square feet)					
Office	100,449	18.1	1.9	3.0	1,818	191	301
Retail	6,000	150.0	15.0	30.0	900	90	180
					2718	281	481
				Percent of Proposed Project	(85%)	(85%)	(86%)

Footnotes for Table 14

1. Office and retail trip generation rates are from San Francisco Department of City Planning, Guidelines for Environmental Review: Transportation Impacts, September 1983. Sources for the analysis include Caltrans, Trip Generation Research Counts, 1965-1976, the Marin County Balanced Transportation Program, Institute of Transportation Engineers, Trip Generation, the Bay Area Transportation Study, and peak hour elevator counts conducted at Fox Plaza in December, 1981.

Source: Planning Analysis & Development

C. Larger Project

In the Initial Study, the alternative of including adjacent sites in the project was discussed. This alternative will not be addressed further, as the project sponsor no longer has control over the adjacent property. If the sponsor were to negotiate with adjacent property owners for gaining control of the property, the proposed project would have to go through the Environmental Review Process and a separate EIR may have to be prepared.

Footnotes

1. San Francisco Department of City Planning, The Downtown Plan, August 1983, and "Proposed Amendments to the City Planning Code to Implement The Downtown Plan," June, 1984.
2. When the Downtown Plan was first proposed, the project came under a FAR of 8:1. The Plan Alternative project was designed to meet this ratio. The June 1984 Proposed Code Amendments revised the C-3-G district to a FAR of 6:1. As such, the sponsor would be required to purchase transfer development rights of 19,989 square feet to stay in compliance with the amended proposed code.
3. San Francisco Department of City Planning, Proposed Amendments to the City Planning Code to Implement The Downtown Plan, op. cit., p. 17.
4. Donald Ballanti, Certified Consulting Meteorologist, personal communication, March 14, 1984.
5. Donald Ballanti, Certified Consulting Meteorologist, personal communication, October 18, 1983.
6. San Francisco Department of City Planning, The Downtown Plan, op. cit., p. 54.
7. Dean Macris, Director of Planning, City of San Francisco, "The San Francisco Office/Housing Production Program (OHPP), Revised Interim Guidelines for Administering the Housing Requirements Placed on Office Development," January 22, 1982.

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X. APPENDICES

Appendix A

1. Notice That An Environmental Impact Report is Determined To Be Required
2. Initial Study

Appendix B

Wind Study Report

Appendix C

1. Cumulative Impact Assumptions
   Table C-1, Projects Completed Before 1984
   Table C-2, Cumulative Office Development in Downtown San Francisco of March 10, 1984
   Table C-3, Passenger Levels of Service or Bus Transit
   Table C-4, Pedestrian Flow Regime
   Table C-5, Vehicular Levels of Service at Signalized Intersections
   Table C-6, Traffic Levels of Service for Freeways

Appendix List of Figures - Transportation

C-1 Photographs of Peak Muni Loading Conditions
C-2 Photos of Pedestrian Flow Levels

Appendix D

Existing Office Development and Regional Housing Requirements
1. Table D-1, Major Office Building Construction in San Francisco Through 1982 in Gross Square Feet
2. Table D-2, Housing Affordability by Household Income

Appendix A

SAN FRANCISCO DEPARTMENT OF CITY PLANNING 450 McAllister St. - 5th Floor
(415)558-5260

NOTICE THAT AN ENVIRONMENTAL IMPACT REPORT IS DETERMINED TO BE REQUIRED

Date of this Notice: July 28, 1982

Lead Agency: City and County of San Francisco, Department of City Planning
450 McAllister St. - 5th Floor, San Francisco CA 94102

Agency Contact Person: Diane Oshima Tel: (415) 558-5260

Project Title: 81.540E Office & Retail Building

Project Sponsor: Columbus Environmental Co.

Project Contact Person: George Rescalvo

Project Address: 101 Hayes Street, at Polk Street

Assessor's Block(s) and Lot(s): 814/1, 16, 21

City and County: San Francisco

Project Description: Construction of 12-story building on existing surface parking lot containing approximately 126,000 square feet of office and 6,000 sq. ft. of retail use, providing approximately 10 off-street parking spaces.

THIS PROJECT MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND AN ENVIRONMENTAL IMPACT REPORT IS REQUIRED. This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15081 (Determining Significant Effect), 15082 (Mandatory Findings of Significance) and 15084 (Decision to Prepare an EIR), and the following reasons, as documented in the Initial Evaluation (initial study) for the project, which is on file at the Department of City Planning:

Please see attached Initial Study.

Deadline for Filing of an Appeal of this Determination to the City Planning Commission: August 9, 1982.

An appeal requires 1) a letter specifying the grounds for the appeal, and 2) a $35.00 filing fee.

Alec S. Bash

Alec S. Bash, Environmental Review Officer

ER5 6/80

I. PROJECT DESCRIPTION

Columbus Environmental Company, the project sponsor, proposes to build a 12-story office building on the southwest corner of Hayes and Polk Streets, in Assessor's Block (AB) 814, lots 1, 16 and 21. The three lots are entirely covered by a surface level parking lot, with access from Hayes and Polk Streets. Figure 1 (p.2) shows the location of the project. The site is roughly "L-shaped" and covers 13,410 square feet, with 148 feet of frontage on Hayes Street and 60 feet of frontage on Polk Street.

The project would contain about 132,000 gross square feet of floor area: 126,000 square feet of offices and 6000 square feet of retail. Retail would be on the ground floor and offices would be on floors 2-12. Each office floor would have about 11,400 square feet. Eleven parking spaces would be provided in the 10,000 square foot basement. The building would have two pedestrian entrances and access to basement parking from Hayes Street; a 775 square foot delivery vehicle space would be accessible from Polk Street.

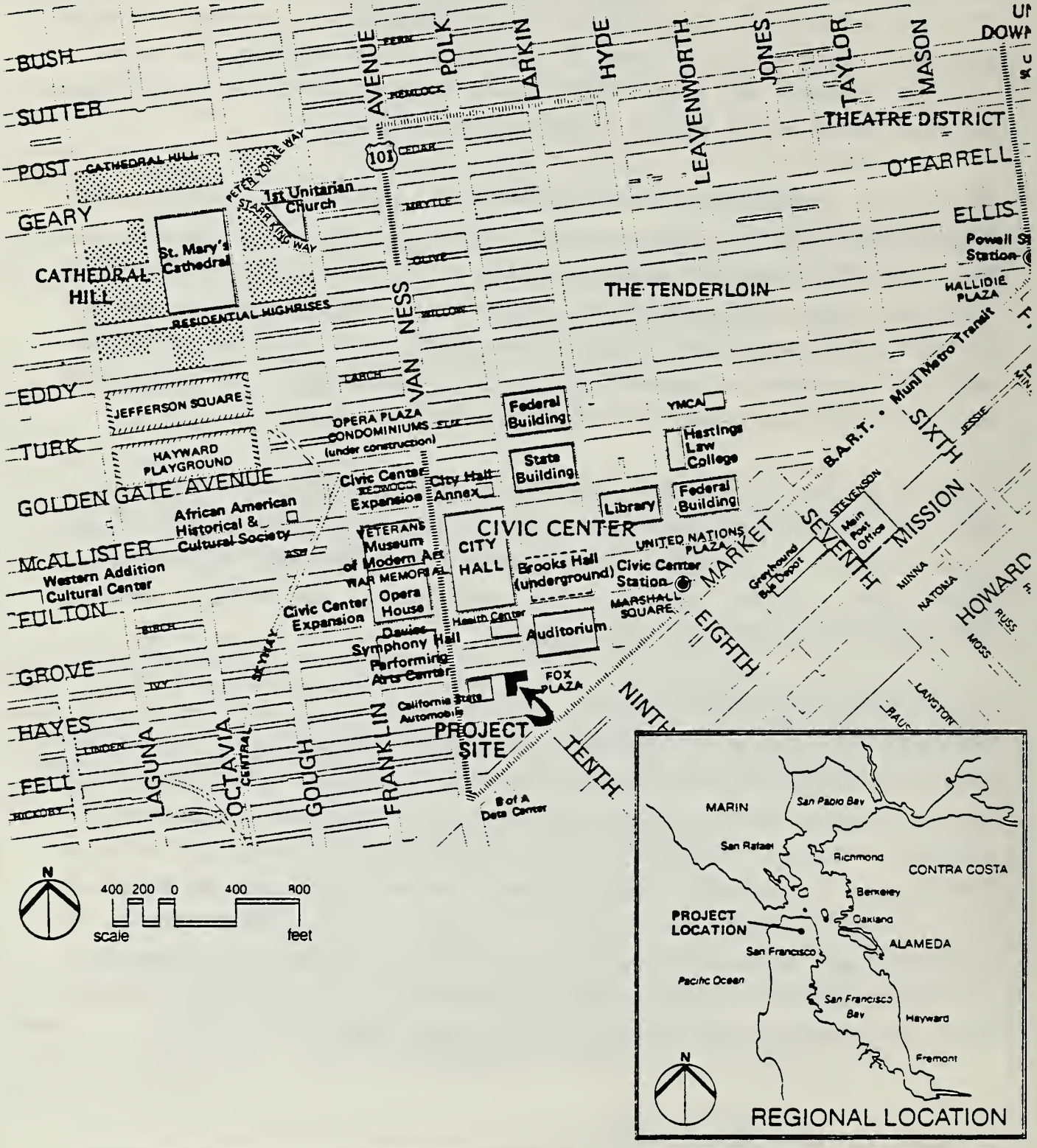
Portions of floors 5 through 11 would be stepped back about seven feet while small (200 square feet) open, landscaped terraces would be on the third and fifth floors. A 1,700 square foot pedestrian arcade would be provided at ground level. An 8,400 square-foot rear yard south of the building would be landscaped and maintained as open space.

II. POTENTIAL ENVIRONMENTAL EFFECTS

Potential environmental effects of the project include wind, demand for housing, cumulative transportation impacts, and growth inducement. Wind tunnel analysis, housing demand analysis, and the cumulative impacts of the project on transit, parking and overall traffic levels in the area will be addressed in a focused EIR. Impacts found to be not significant are discussed in this Initial Study, and require no further analysis. With respect to transportation, no additional study is required for the following: impacts on individual Muni and regional transit lines; impacts on pedestrian circulation; and impacts on specific street circulation links.

PROJECT LOCATION

source: Planning Analysis & Development



III. INSIGNIFICANT ENVIRONMENTAL EFFECTS

A. GENERAL CONSIDERATIONS:	Yes	Maybe	No	N/A	Disc.
1. Would the project conflict with objectives and policies in the Comprehensive Plan (Master Plan) of the City?	X				X
2. Would the project require a variance, or other special authorization under the City Planning Code?			X		X
3. Would the project require approval of permits from City Departments other than DCP or BBI, or from Regional, State or Federal agencies?			X		X
4. Would the project conflict with adopted environmental plans and goals?			X		X

The project would be reponsive to most policies of the San Francisco Comprehensive Plan, but could conflict with the Environmental Protection Element and the Urban Design Element.

The Environmental Protection Element, Transportation Noise (p. 15) Objective 3, Policy 1, states: "Discourage new uses in areas in which the noise levels exceed the noise compatibility guidelines for that use." The background noise level near Polk and Hayes Streets is 70 L_{dn}. These noise levels render the site a location where office buildings should be developed only after a detailed analysis of noise reduction requirements has been made and the necessary noise insulation features included in the design.

The Urban Design Element, Major New Development (p. 36) Policy 1 states: "Promote harmony in the visual relationships and transitions between new and older buildings." The project would be 12 stories in height, 5 to 8 taller than some surrounding commercial and residential buildings, and 17 stories shorter than the 29-story Fox Plaza and 100 Van Ness Buildings. Although of different height than neighboring buildings, the project could act as a transition between the high and low-rise structures. The project's curved facade would emphasize the horizontal plane, and would contrast with the flat, straight vertical features of adjacent structures.

The project would have a pedestrian arcade at street level, unlike any other buildings in the Hayes or Polk Street blocks near the site. The arcade would respond to the Urban Design policy (p. 57) that states: "Improve pedestrian areas by providing human scale and interest." The arcade would provide covered access to the building and increase pedestrian comfort in inclement weather. The arcade would be 12 feet wide and 17 feet high. Retail uses would front onto the arcade, which would receive light from display windows. Other lights would be provided for pedestrian safety.

ZONING

The site is in a C-3-G (Downtown General Commercial) District, where offices and retail are allowed as principal uses (Sections 218, 219).[1] The site also lies within the Civic Center Special Sign District No. 1; signs must not exceed 200 square feet in area and must lie flat against building walls. Retail uses on the ground floor would have signs, but these would be set back within the pedestrian arcade and would comply with special district requirements.

Floor Area Ratio (FAR): FAR for the site is 10.0 to 1 (Section 124.a), which would allow 134,100 square feet of floor area. The proposed total gross area of the project is 132,000 square feet.

Height and Bulk: The site is in an 160-H Height and Bulk District in which maximum allowable height is 160 feet, and bulk over 100 feet of height is limited to 170 feet in length and 200 feet on the diagonal. The 101 Hayes Building would be 156.5 feet high, and the maximum length would measure 148 feet along Hayes Street. The maximum diagonal would be 192 feet. The building as presently designed would comply with the requirements of the height and bulk district.

Parking and Loading: The C-3 Use District exempts uses other than dwellings from off-street parking requirements (Section 161(c)). The project would provide 11 parking spaces in the garage, with one reserved for delivery vans. Up to 15 parking spaces are permissible as an accessory use where no off-street parking is required (Section 204.5).

The project would be required to provide one off-street freight loading space according to both the existing Code (Section 152, Table 5) and to the stricter standards endorsed as policy by the City Planning Commission (Resolution No. 9286, adopted January 21, 1982). The project would provide one vehicle loading dock at grade in response to these requirements and to the Transportation Element policy which states: "Require off-street facilities for freight loading and service vehicles in all major new developments." (Objective 3 of the Downtown Transportation Plan, p. 7).

1. Land Use: Would the proposed project:	Yes	Maybe	No	N/A	Disc.
a. Be different from surrounding land uses?			X		X
b. Disrupt or divide the physical arrangement of an established community?			X		X

The project would be compatible with the mixed-use character of both the Civic Center area in general and the Hayes/Polk intersection in particular. Surrounding land uses include high-rise office and residential buildings and a parking lot. The area has many government office buildings including City Hall and the Federal Office Building. The project would have ground floor retail similar to buildings such as Fox Plaza.

The 12-story project would act as a transition between surrounding high and low-rise buildings.

Because the project would be similar in scale and land use to other buildings in the area, it would not disrupt the physical arrangement of the area.

2. Visual Quality and Urban Design: Would the proposed project:	Yes	Maybe	No	N/A	Disc.
a. Obstruct or degrade any scenic view or vista open to the public?			X		X
b. Reduce or obstruct views from adjacent or nearby buildings?		X			X
c. Create a negative aesthetic effect?			X		X
d. Generate light or glare affecting other properties?		X			X

Street level views of Civic Center Plaza and City Hall are visible from the site area. The proposed project would not obstruct these views. Views of the Opera House and City Hall seen from high-rise buildings such as Fox Plaza and 100 Van Ness may be partially reduced by the project. Those building are twice as high as the project, and would not lose all views. As the impact would not be significant, no further study is required.

The project would not have a negative aesthetic effect on the surrounding area. It would involve removal of a surface parking lot, containing 64 spaces. The project would have a different visual character than the nearby office buildings, which are rectangular in shape and have a vertical emphasis to the facade. In contrast, the proposed project would have a more sculptured and articulated form. Facade design would emphasize horizontal rather than vertical character, with seven-foot wide bands of glass and concrete, accentuated by narrow vertical mullions. Building mass and the appearance of flat, planar surfaces would be broken up through such design features as the ground floor pedestrian arcade, a rounded corner at the Hayes/Polk intersection, setbacks above the third story, and landscaped terraces on the third and fifth floors. The building exterior would be of white concrete, similar in color, texture and finish to the Louise Davies Symphony Hall.

The project could generate glare from the south facade and to a lesser extent the west facade; the use of grey-tinted glass and the break in planar surfaces would reduce this to insignificant levels.

3. Population/Employment/Housing:	Yes	Maybe	No	N/A	Disc.
Would the proposed project:					
a. Alter the density of the area population?	X				X
b. Have a growth-inducing effect?		X			X
c. Require relocation of housing or businesses, with a displacement of people, in order to clear the site?			X		
d. Create or eliminate jobs during construction and operation and maintenance of the project?	X				X
e. Create an additional demand for housing in San Francisco?		X			X

The project would increase daytime population density in the area by about 525 persons due to jobs that would be at the site.[2] Whether the jobs would in fact represent a net gain in jobs in San Francisco is not known. These jobs could be jobs moving from another location in San Francisco or moving from elsewhere in the Bay Area. If the 525 jobs are assumed to represent a net gain in employment, then the project would have a growth-inducing effect. Further analysis of the project's growth-inducing impacts will be included in the EIR.

If these jobs were held by people who did not now live in San Francisco but wanted to do so, the employees would generate a demand for housing. According to the Department of City Planning Housing formula, the proposed project would generate demand for about 112 units of housing in San Francisco. The formula assumes that office use generates one employee for each 250 gross square feet, that 40% of all employees at the site would desire to live in the City, and 1.8 working adults occupy each housing unit. The impact of housing demand and proposed mitigation measures will be discussed in the EIR.

No jobs would be eliminated as the existing parking lot is operated without a full-time attendant; patrons deposit money in the fee box at the entrance to the lot.

Construction employment in San Francisco would increase during the 18-month construction period. Based on a construction cost estimate of $10.4 million, with 60% of the cost attributed to labor, 220 days of work a year, wages and benefits of $30 per hour, and an eight-hour day, the project would provide about 118 person-years of temporary employment. Employees involved in the maintenance and operation of the project are included in the above figures.

4. Transportation/Circulation	Yes	Maybe	No	N/A	Disc.
Would the construction or operation of the project result in:					
a. Change in the use of existing transportation systems? (transit, roadways, pedestrian ways, etc.)	X				X

	Yes	Maybe	No	N/A	Disc.
b. An increase in traffic which is substantial in relation to existing loads andstreetcapacity?			X		X
c. Effects on existing parking facilities, or demand for new parking?	X				X
d. Alteration to current patterns of circulationor movement of peopleand/or goods?			X		X
e. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?			X		X
f. A need for maintenance or improvement or change in configuration of existing publicroadsorfacilities?			X		X
g. Construction of new public roads?			X		X

The project would generate about 2,800 trips a day, with 400 in the peak hour (5-6PM). 140 peak hour trips would be by auto (including car- and vanpools), 150 would be by Muni and 60 would be by BART. Other transit systems would receive less than 30 passenger trips each. Transit trips due to the project would increase by .5% over existing levels, which would not constitute a substantially adverse effect on these transit systems. The cumulative impact of this and other projects scheduled for completion by 1983 would require an increase in transit service capacity on Muni, BART and other regional carriers, and requires further analysis in the EIR.[3]

The project would add about 90 vehicles during the peak hour to Polk and Hayes. The increases would be less than 5%, as the former currently carries 800 and the latter 1,200 peak hour vehicle trips. Service levels would remain "excellent" (Level of Service A) at the Polk/Hayes and Polk/Market intersections, and "good" to "very good" (Level of Service B/C)at the Hayes/Van Ness intersection.[4] The project would increase traffic on links to the regional freeway system by less than 1% and would not have a substantially adverse impact. No further study of the project's impacts on individual streets, intersections and freeway ramps will be included in the EIR. The cumulative traffic increase due to this and other projects scheduled for completion by 1983 would result in a 100% increase over existing levels, and will be analyzed further in the EIR.[5]

Most of the peak hour trips would involve some pedestrian activity (e.g. people walking to transit). Pedestrian flows near Polk and Hayes would increase by between 10-70% over current levels during the peak hour, depending on the location. As sidewalk conditions are and will continue to be unimpeded, no further study is required.[6]

The proposed project would provide one loading space and delivery dock at grade on Polk Street. The provision of one space meets not only Section 152 of the City Planning Code, but also the requirements established in Off-Street Loading and Service Space Requirements and Guidelines, January 1982 as adopted by the City Planning Commission (Resolution 9286). The loading space proposed in the project, measuring about 15 feet by 50 feet, would exceed the stricter dimension standards outlined in the January 1982 requirements.

The project sponsor would also designate one of the eleven garage spaces for use by service vans delivering goods to the building. Such an area, which is not required, would further minimize traffic conflicts that could occur during loading activity. Loading facilities of the proposed project will not be further addressed in the EIR.

The reduction in on-site parking (from 64 to 11 spaces) would decrease the number of vehicles entering and exiting the site, and thus would not increase traffic hazards to pedestrians, bicyclists or other vehicles. No further analysis regarding traffic hazards will be included in the EIR. Potential impacts created by the reduction in available public off-street parking will receive further discussion in the EIR.

5. Noise:	Yes	Maybe	No	N/A	Disc.
a. Would the proposed project result in generation of noise levels in excess of those currently existing in the area?			X		X
b. Would existing noise levels impact the proposed use?	X				X
c. Are Title 25 Noise Insulation Standards applicable?			X		X

According to the Environmental Protection Element (p. 17) of the San Francisco Comprehensive Plan, the predominant source of noise is from traffic on Polk and Hayes Streets. The background noise level at the site is 70 L_{dn}. The thoroughfare noise level places the site in an area where a detailed analysis of the noise reduction requirements must be prepared and noise insulation features included in the project design. The project sponsor would have such a study prepared and this is incorporated as a mitigation measure (see page 20).

Noise levels in the area would not increase after project occupancy as vehicular trips to the site would be less than the amount that presently occurs due to the parking lot. Traffic increases under 5% would not cause an audible increase in the ambient noise level (EE 79.D53, Chestnut Street Commons, Final EIR, p. 105). Mechanical equipment noise is regulated by the San Francisco Noise Ordinance, Article 2909, "Fixed Source Noise Levels" (San Francisco Municipal Code, Part II, Chapter VIII, Section 1, Article 29, 1972). For the site's C-3-G zone, the ordinance restricts equipment noise levels at the property line to 70 dBA between 7:00 A.M. and 10:00 P.M., and to 60 dBA between 10:00 P.M. and 7:00 A.M. The project would meet these standards.

Construction noise is regulated by the San Francisco Noise Ordinance which requires that all construction equipment except impact tools and equipment not emit more than 80 dBA when measured at a distance of 100 feet (86 dBA when measured at a distance of 50 feet). Impact tools and equipment including pavement breakers, jackhammers and pile drivers must have both their intake and exhaust muffled to the satisfaction of the Direction of Public Works. The Ordinance further requires a special permit for construction after 8:00 P.M. and before 7:00 A.M.

Foundation type and construction methods have not been finalized but there would not be any pile-driving.[7] Construction noise can be described for four phases of construction. Excavation would generate noise in the 78-79 decibel range; foundation work would generate noise in the 76 decibel range; superstructure erection would generate noise in the 67-77 decibel range; and finishing would generate noise in the 70-83 decibel range. All of these

noise levels are measured in terms of L_{dn}.[8] When a range of noise levels is given, the lower value represents levels that could be achieved with state-of-the-art equipment and muffling techniques. The project sponsor would utilize such techniques, which are incorporated in the mitigation section (p. 20). Construction and occupancy noise would not receive further study in the EIR.

6. Air Quality/Climate:	Yes	Maybe	No	N/A	Disc.
Would the proposed project result in:					
a. Violation of any ambient air quality standard or contribution to an existing air quality violation?			X		X
b. Exposure of sensitive receptors to air pollutants?			X		X
c. Creation of objectionable odors?			X		
d. Burning of materials including brush, trees, or construction materials?			X		
e. Alteration of wind, moisture, or temperature (including sun shading effects), or any change in climate, either locally or regionally?	X				X

The project would add less than 5% to the traffic volume on Hayes, Polk, and Van Ness, an amount that would not result in measurable increase in air pollution. The project would contribute to the deterioration of air quality, but would not itself cause air quality standards violations. [9]

The project would cause a temporary increase in suspended particulates over the 18-month construction period. Grading and construction would generate about .36 tons (720 lbs) of dust (particulate) per acre per month, based on the assumption that such activities generate 1.2 tons of dust per acre per month.[10] This would not exceed State standards.[11] Except to persons with respiratory disorders, dust is more a nuisance than a hazard, and settles out of the atmosphere rapidly with increasing distance from the source.

The project would not have a substantially adverse shadowing effect on streets around the site. Fox Plaza to the east and 100 Van Ness and the

Automobile Association building to the west already cast shadows across the site, Hayes Street and Polk Street. The project would cast a shadow on the Polk/Hayes intersection and the parking lot across Hayes Street, which now receive afternoon sun. As the intersection and parking lot are not public open spaces for recreational use, this is not considered to be a substantially adverse effect. No further study of this issue will be included in the EIR.

The project is located in an area with strong pedestrian-level winds. For the EIR, the project sponsor would undertake wind tunnel tests to determine how the project would affect pedestrian conditions around the site. The sponsor would follow the recommendations of the wind analyst to modify the building design, if necessary, to mitigate wind impacts on public pedestrian areas.

7. Utilities and Public Service:	Yes	Maybe	No	N/A	Disc.
Would the proposed project:					
a. Have an effect upon or result in a need for new or altered governmental services in any of the following?					
fire protection			X		X
police protection			X		X
schools			X		X
parks or other recreational facilities			X		X
maintenance of public facilities			X		X
power or natural gas			X		X
communications systems			X		X
water			X		X
sewer/storm water drainage			X		X
solid waste collection & disposal			X		X

Fire Protection: The site is served by Station 36, at 109 Oak Street, about four blocks from the site; response time ranges from three to four minutes. Water mains, hydrants and water flows would all be adequate to serve the project, and there would be no need for additional Fire Department personnel or equipment. The project would have a life safety program and would comply with Building Code requirements for fire protection measures in high-rise buildings. The project would have no effect on the ability of the Fire Department to provide fire protection to the area except in the case of a

major disaster, fire or earthquake. If a number of new projects were constructed in the area, cumulative impacts could lead to an increase in services required. [12]

Police Protection: The site is in the Northern Police District, with a station at 841 Ellis Street, about seven blocks from the site. This district has the second highest crime rate in the City, and Reporting Area (RA) 364, in which the site is located, has the third highest crime rate in the district. RA 364 is bounded by Turk, Leavenworth, Market and Van Ness. The area is patrolled 24 hours a day by radio car, and from 8:00 A.M. to midnight there is a footbeat patrol. For Priority One calls (homicide, rape, robbery in progress), response time is three minutes. The project would have no impact on the ability of the department to provide police protection in the area. It would not create a need for additional police personnel or equipment. [13]

Schools: The area is served by John Swett Elementary School (727 Golden Gate Avenue), John Muir Elementary School (381 Webster Street), and Raphael Weill Elementary School (1501 O'Farrell). The project would not increase the residential population of school age children. Consequently, enrollment at these three schools would not be affected. [14]

Parks and Recreational Facilities: Civic Center Plaza, is located one block from the site in front of City Hall. This park is maintained by the Recreation and Parks Department. It covers 5.85 landscaped acres and is oriented toward passive recreational use: facilities include benches, sitting areas, fountains and pools. Civic Center Plaza is the traditional meeting place for rallies and other public events, and up to 50,000 people have thronged to this park, (e.g. Gay Freedom Day). [15] United Nations Plaza, maintained by the Department of Public Works, is located four blocks from the site. This 5.6 acres of open space is also oriented toward passive recreational use, with a large fountain and seating areas. The project could result in more use of these parks, especially at lunch time, if workers do not use the landscaped open space provided at the rear of the building, which would not be open for public access.

Maintenance of Public Facilities: There are no public facilities in the area that would be affected by the proposed project.

Power and Natural Gas: The site is presently occupied by a parking lot, illuminated only by street lights; no energy is consumed on-site. The project would consume more energy, as discussed in the Energy Section of this Initial Study. The project would have to comply with energy conservation standards of Title 24 of the California Administrative Code. Increases in usage would not cause a significant increase in the amount of power demanded from Pacific Gas and Electric Company (PG&E) nor would it decrease the level of service in the area. No additional personnel or equipment would be required other than a transfer vault in the sidewalk and power lines for the project itself. [16]

Communications Systems: The project would increase in the amount of telephone service but Pacific Telephone & Telegraph would have no problem in meeting that demand if six months' advance notice were given. Telephone service in the area would not be affected by the addition of the project. [17]

Water: No water is presently consumed on the site. The site is served by a 6-inch main on Hayes and a 6-inch main on Polk. Projected water demand for the project is about 487,500 gallons per month. The mains would be sufficient to serve the project; the project would not affect the supply of water or provision of service in the area. [18]

Sewer: A 12-inch vitrified clay pipe sewer on Hayes and a 36-inch reinforced concrete pipe sewer on Polk serve the site. Wastewater from the area is transported by gravity flow to the North Point Sewage Treatment Plant at Stockton and Bay Streets. No wastewater is presently generated at the site. Projected wastewater generation would be about 474,000 gallons per month. The project would not affect collection and treatment of sewer and storm water, nor would it create a need for additional equipment or personnel. [19]

Solid Waste Collection and Disposal: The Golden Gate Disposal Company provides solid waste collection service seven days a week in the project area. Little or no solid waste is presently generated at the site. Projected generation would be about 38,000 pounds a month. The proposed project would

have no effect on the ability of Golden Gate Disposal to provide service to the area, and no new additional personnel or equipment would be required.[20]

As the project would not have a significant effect on any public facilities, services or utilities, no further study is required.

8. Biology:	Yes	Maybe	No	N/A	Disc.
a. Would there be a reduction in plant and/or animal habitat or interference with the movement of migratory fish or wildlife species?			X		X
b. Would the project affect the existence or habitat of any rare, endangered or unique species located on or near the site?			X		
c. Would the project require removal of mature scenic trees?			X		

As the site is fully occupied by a paved parking lot, there is no plant or animal life that could be affected by the project.

9. Land (topography, soils, geology):	Yes	No	Maybe	N/A	Disc.
Would the proposed project result in or be subject to:					
a. Potentially hazardous geologic or soils conditions on or immediately adjoining the site? (slides, subsidence, erosion and liquefaction)			X		X
b. Grading? (consider height, steepness and visibility of proposed slopes; consider effect of grading on trees and ridge tops)	X				X
c. Generation of substantial spoils during site preparation, grading, dredging or fill?			X		X

The site is essentially level, and there are no mapped geologic hazards or faults on the site. The site is not in a Special Geologic Study area. Although very strong shaking of the site is likely to occur during a mode-

rate to severe earthquake, surface features and the anticipated subsurface profile indicate that landslides, subsidence, liquefaction, and other ground failure would not occur.[21]

Excavation and grading for the basements of the structure would result in the removal of about 20,000 cubic yards of dirt and sand that would have to be hauled from the site. The sand would be collected in debris boxes and then trucked to a transfer station at Candlestick Park and later to a disposal site. The probable haul route would be north on Polk Street or Van Ness Avenue to Turk Street, and west on Turk htreet to the freeway entrance at Gough. During excavation, temporary shoring would be required along streets to prevent movement of the soils supporting the surrounding sidewalks and streets.

10. Water:	Yes	Maybe	No	N/A	Disc.
Would the proposed project result in:					
a. Reduction in the quality of surface water?			X		X
b. Change in runoff or alteration to drainage patterns?			X		X
c. Change in water use?	X				X
d. Change in quality of public water supply or in quality or quantity of ground water?			X		X

There are no surface streams, lakes or other bodies of water on the site, so the project would not directly affect the quality of surface water. As the site is already paved over its entire surface, there would not be an increase in runoff. Surface drainage patterns would not be altered. The project would not significantly affect the quality or quantity of the public water supply, so no further study of potential impacts is required. (See Section 7, "Utilities and Public Services", p.14, for a discussion of the project's water consumption.)

11. Energy/Natural Resources:	Yes	Maybe	No	N/A	Disc.
Would the proposed project result in:					
a. Any changes in consumption of energy?	X				X
b. Substantial increase in demand on existing energy sources?			X		X
c. An effect on the potential use, extraction, conservation or depletion of a natural resource?		X			X

The project would cause an increase in the amount of energy consumed on the site, due to heating and cooling of offices and retail space, and providing hot water throughout the building. The use of electricity for heating and lighting would deplete whatever fossil fuels are used by PG&E to generate electricity. Energy consumption of the proposed building has not been estimated because mechanical systems and building specifications for the project have not been chosen. The building would have to comply with Title 24 of the California Administrative Code governing energy consumption and heat loss reduction. Based on the State of California energy budget for office, retail and restaurant uses, maximum energy consumption for the project as a whole could not exceed 1.57 billion BTU (153,600 Kwh) per month.[22] Title 24 also requires the energy budget to be independently analyzed by an energy specialist prior to issuance of a building permit. This would result in a more accurate energy budget estimate due to the application of the state approved energy analysis program and the additional design details that would available later in the design process. The sponsor intends to retain the services of a mechanical engineer whose recommendations for energy conservation would be followed.

12. Hazards:	Yes	Maybe	No	N/A	Disc.
Would the proposed project result in:					
a. Increased risk of explosion or release of hazardous substances (e.g., oil, pesticides, chemicals or radiation), in the event of an accident, or cause other dangers to public health and safety?				X	

	Yes	Maybe	No	N/A	Disc.
b. Creation of or exposure to a potential health hazard?			X		
c. Possible interference with an emergency response plan or emergency evacuation plan?			X		X

The project's life safety program would include an evacuation and emergency response plan. This plan would be coordinated with emergency procedures for the area that were instituted by the City.

13. Cultural:	Yes	Maybe	No	N/A	Disc.
Would the proposed project:					
a. Include or affect a historic site, structure or building?			X		X
b. Include a building or any recognized list of buildings of architectural merit?			X		X
c. Include or affect a known archaeological resource or an area of archaeological resource potential?			X		X
d. Cause a physical change affecting unique ethnic or cultural values?			X		X

According to the Department of City Planning's Archeological Sensitivity Map, the site is located in an area with "no known potential for archeological finds."

Within two to three blocks of site are 27 buildings included in the Department of City Planning's 1976 Inventory of Architecturally Significant Buildings. A block north of the site is the Civic Center, a proposed City historic district (City Planning Commission Resolution No. 7807, October 6, 1979). The architectural style in the Civic Center area is Beaux Arts Classical. The project would have no impact on these buildings; no further study of impacts is required.

V. MITIGATION MEASURES

C. Mitigation Measures	Yes	No	Disc.
Are mitigation measures included in the project?	X		X
Are other mitigation measures available?	X		X

MITIGATION MEASURES INCLUDED AS PART OF THE PROJECT

Land Use

1. Landscaping on sidewalks, terraces, roofs and balconies would add greenery to an area that contains little or none.

Transportation

2. The sponsor agrees to reserve parking spaces for short-term use by not leasing out the spaces and by establishing parking rates that do not level off over time. Of the 11 spaces in the garage, one would be reserved for a loading van and one would be reserved for a vanpool vehicle; thus, only nine short-term parking spaces would be available.

3. The sponsor would perform a post-occupancy survey of transit use and needs in accordance with Department of City Planning guidelines.

4. The sponsor would promote ridesharing by providing a tenants' directory, by making ridesharing information available in the building, by providing a rideshare broker and by reserving at least one space for vanpool parking.

5. In order to reduce peak-hour impacts, the sponsor would implement or encourage a flextime operation for people working in the building.

6. Muni fast passes and BART passes would be sold in the building to encourage use of transit.

7. To reduce the possibility of pedestrian/vehicular conflicts, the sponsor would provide audio and visual warning signs or devices and ample sight distance for motorists and pedestrians at project driveways.

8. During construction, the sponsor would provide parking for construction workers.

9. During construction, parking would be provided for trucks to keep them from obstructing traffic.

10. The sponsor would meet with the Department of Public Works to coordinate hauling routes and sidewalk and street-lane closures.

Noise

11. The sponsor would have a detailed noise analysis carried out by a qualified acoustical consultant before construction and would follow the consultant's recommendations for noise reduction and insulation features to be incorportated in the design.

12. During construction the sponsor would require the contractor to use state-of-the-art muffling techniques for noise equipment.

Air Quality

13. During excavation, unpaved demolition and construction areas would be watered down to reduce air-borne dust. The sponsor would require this in the construction contract.

Land

14. The sponsor agrees to follow the recommendations of a California-licensed soils engineer or geologist regarding excavation and foundation design.

Hazards

15. An evacuation and emergency response plan would be developed by the sponsor or building management staff, in consultation with the Mayor's Office of Emergency Services to ensure coordination between the City's emergency planning activities and the project's plan and to provide for building occupants

in the event of an emergency. The project's plan would be reviewed by the Office of Emergency Services and implemented by building management before issuance by the Department of Public Works of final building permits.

Cultural

16. Should evidence of cultural or historic artifacts of significance be found during excavation, the Environmental Review Officer and the president of the Landmarks Preservation Advisory Board would be notified. The project sponsor would select an archeologist or other expert to help the Office of Environmental Review determine the significance of any find and whether feasible measures, including appropriate security measures, could be implemented to preserve or recover such artifacts. The Environmental Review Officer would then recommend specific mitigation measures, if necessary, and recommendations would be sent to the State Office of Historic Preservation. Excavation or construction which might damage the discovered cultural resources would be suspended for a maximum of four weeks, to permit inspection, recommendation and retrieval (if appropriate).

D. Alternatives:	Yes	Maybe	No	N/A	Disc.
Were other alternatives considered?	X				X

Alternative A: No Project

If the project were not built, the parking lot would remain on the site, and none of the potential impacts associated with the project would occur. Long-term parking for 64 cars would remain. This use of the site would not respond to city policies encouraging the removal of long-term parking from the C-3-G (Downtown General Commercial) District.

Alternative B: Compliance with "Guiding Downtown Development"

Under the proposed regulations, the building would have to be shorter and less bulky, and provide more open space. Proposed FAR for the site would be 8.0 to 1, allowing 107,280 square feet of floor area. An additional bonus of 0.5 FAR could be granted due to provision of ground floor retail, thus

increasing the potential maximum floor area to 113, 985 square feet. The site area would be reclassified to a 130-E Height and Bulk District, in which maximum allowable height would be 130 feet and bulk over 65 feet of height would be limited to 110 feet in length and 140 feet on the diagonal. A minimum of 3,800 square feet of open space available to the public would be required as would the provision of street trees. Building design also could be modified for a more sculptured appearance.

In addition, the project sponsor would have to provide 97 dwelling units under the proposed City housing policy formula. If the project sponsor incorporated residential units into the 101 Hayes building, maximum allowable FAR for the site could be increased to 12.0 to 1. With the additional FAR allowance, maximum floor area would be 160,920 square feet. If all the required housing were provided in the building, then the total square footage devoted to office use would be about 117,520, a reduction of 8,480 square feet from what is proposed with the project.

Alternative C: Larger Project

The sponsor may propose to include adjacent sites in the project, subject to negotiation with adjacent property owners. This alternative may involve removal of housing on adjacent parcels, which would have to be replaced on a one-for-one basis with new units at the same rent. This housing would be in addition to dwelling units that may be required to off-set office impacts.

These alternatives, as well as any others deemed to appropriate, will be further examined in the EIR.

basis of this initial evaluation:

I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Department of City Planning.

I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures, numbers____, in the discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

for Robert W. Passmore
Assistant Director-Implementation

for

Dean Macris
Director

Date:_____

FOOTNOTES:

1. This and other section citations refer to the San Francisco City Planning Code.

2. This calculation assumes an employment generation rate of 1 employee per 250 square feet of office space, 1 employee per 350 square feet of retail space, 1 maintenance employee per 30,000 square feet of total space, and 1 security employee.

3. PRC Voorhees, "Preliminary Environmental Assessment of Transportation Issues for 101 Hayes Street Project", letter, April 27, 1982, and "101 Hayes Project (81.540E) Estimation of Transportation Impacts", letter, July 21, 1982. A copy of these letters are on file with the Office of Environmental Review.

4. PRC Voorhees, ibid.

5. PRC Voorhees, ibid. The list of projects used in the cumulative impact analysis includes projects that are under review, approved and under construction and can be found in the Department of City Planning's "Office Building Construction and Conversion in San Francisco as of November 1, 1981". A copy of this list is on file with the Office of Environmental Review.

6. PRC Voorhees, ibid.

7. Don Hillebrandt Associates, "Evaluation of Geologic, Seismic and Soil Engineering Conditions at Site, Lots 1, 16, 17 and 18 (Block 814) at Southwest Corner of Intersection of Polk and Hayes Streets", letter, May 4, 1982. A copy of this letter is on file with the Office of Environmental Review.

8. Environmental Protection Agency, "Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances", December 31, 1971. L_{dn} is an averaged sound level measurement, based on human reactionto cumulative noise exposure over a 24-hour period, which takes into account the greater annoyance of night-time noises.

9. U.S. Environmental Protection Agency, Compilation of Air Pollutant Emission Factors, AP-42, Part B, August 1977.

10. U.S. Environmental Protection Agency, ibid.

11. The state standard for total suspended particulates is 100 micrograms per cubic meter over a 24-hour period. Estimates of the impacts of project construction were based on the methodology suggested in the Bay Area Air Pollution Control District's Guidelines for Air Quality Impact Analysis of Projects, June 1975.

12. Edward E. Murphy, Chief, Support Services, San Francisco Fire Department, letter, April 15, 1982. A copy of this letter is on file with the Office of Environmental Review.

13.Sargeant Paul Libert, San Francisco Police Department, Planning and

Research Division, telephone conversation, April 20, 1982.

14. Edward Lahl, Property Administrator, San Francisco Unified School District, telephone conversation, April 15, 1982.

15. Timothy Lilliquist, Planner, Recreation and Parks Department, telephone conversation, April 20, 1982.

16. Robert Fohlen, Power Engineer, Pacific Gas & Electric Company, telephone conversation, April 14, 1982.

17. Barney Parrish, Manager/Engineer, Pacific Telephone, telephone conversation, April 14, 1982.

18. Cy Wentworth, for George Nakagaki, Manager, City Distribution Division, San Francisco Water Department, telephone conversation, April 26, 1982.

19. Nathan Lee, San Francisco Clean Water Program, letter, April 19, 1982. A copy of the letter is on file with the Office of Environmental Review.

20. Pete Gardella, Golden Gate Disposal Company, telephone conversation, April 15, 1982.

21. Don Hillebrandt Associates, op. cit.

22. Section T20-1470, Title 24 of the California Administrative Code. Annual budgets for each land use are give in Table 2-1 and are as follows:

Office: 141,000 BTU/gross sq. ft./yr. x 126,000 = 17.76 billion/12 = 1.48 billion BTU per month.

Retail: 180,000 BTU/gross sq. ft./yr. x 6,000 = 1.08 billion/12 = .09 billion BTU per month.

Appendix B

Wind Study

CONTENTS

FIGURES

MICROCLIMATE IMPACT STUDY

I. INTRODUCTION

Architects, engineers, and city planners designing urban structures are limited by the lack of information on wind effects due to structures, such as pedestrian discomfort and wind-caused mechanical problems with doors, windows, and ventilating systems. Once a structure is built, remedial measures (if they exist at all) usually are expensive.

It is virtually impossible to anticipate, by analysis or intuition, the winds that will be caused by a structure, as they are determined by complex interactions of forces. Fortunately it is possible to predict the wind patterns and pressures around structures by testing scale models in a wind tunnel which can simulate natural winds near the ground. This allows the designer to foresee possible environmental and mechanical problems and alleviate them before the building is erected.

Data from wind tunnel tests can be combined with climatological data in analysis of the effect of a proposed structure on pedestrians in terms of human comfort. The frequency distribution of wind strengths at pedestrian level, combined with temperature data and shadow patterns of the proposed structure and its surroundings, can be used to forecast comfort at pedestrian levels.

II. SUMMARY

Wind tunnel tests were conducted for the project for northwest, west and southwest wind directions. The wind in San Francisco blows from these directions over 97% of the time during the summer months. Portions of the pedestrian areas near the site were found to already exceed the pedestrian comfort criterion for all three wind directions tested. The Fox Plaza building exerts a strong influence on wind in the area, particularly on Hayes Street.

The project generally resulted in lower winds along Hayes Street except at the Hayes/Polk intersection. The proposed project generally reduced or left unchanged winds along Polk Street.

In general, the project did not increase the area exceeding the pedestrian confort criterion. The one exception was at the southeast corner of the proposed building during northwest winds, where an isolated area exceeding the 11.0 mph criterion is predicted. These conditions occur about ten percent of the time in the summer. The pedestrian hazard criterion was not exceeded near the project site with or without the project.

III. BUILDING AND SITE DESCRIPTION

The project site is an L-shaped lot at the northeast corner of the block bounded by Hayes Street, Polk Street, Fell Street and Van Ness Avenue (see Figure 1, page 2).The project would consist os a 12 story office building. Portions of floors 5 through 11 would be stepped back about seven feet. Small landscaped terraces would be located at the third and fifth floors. A 12-foot wide pedestrian arcade would extend along the Polk and Hayes Street frontage of the building.

The site is partially sheltered from westerly winds by a six-story structure at the Van Ness/Hayes intersection. The site and the lot to the west, are currently used as a parking lot. Several one-and two-story buildings border the south end of the site. The 28 story Fox Plaza building is directly across Polk Street from the project site.

IV. MODEL AND WIND TUNNEL FACILITIES

a. Model

A scale model of the proposed project and the structures surrounding the area for a distance of several blocks was constructed of polystyrene and urethene foams at a scale of 1 inch equals 25 feet. Building configurations and heights were obtained from the Sanborn maps and from site visits.

b. Wind Tunnel Facilities

The Environmental Impact Planning Corporation boundary layer wind tunnel was designed specifically for testing architectural models. The working section is 7 feet wide, 43 feet long, and 5 feet high. Wind velocities in the tunnel can be varied from 3.5 mph to 13 mph. The flow characteristics around sharp-edged objects, such as architectural models, are constant over the entire speed range. Low speeds are used for tracer smoke, high speeds for windspeed measurements.

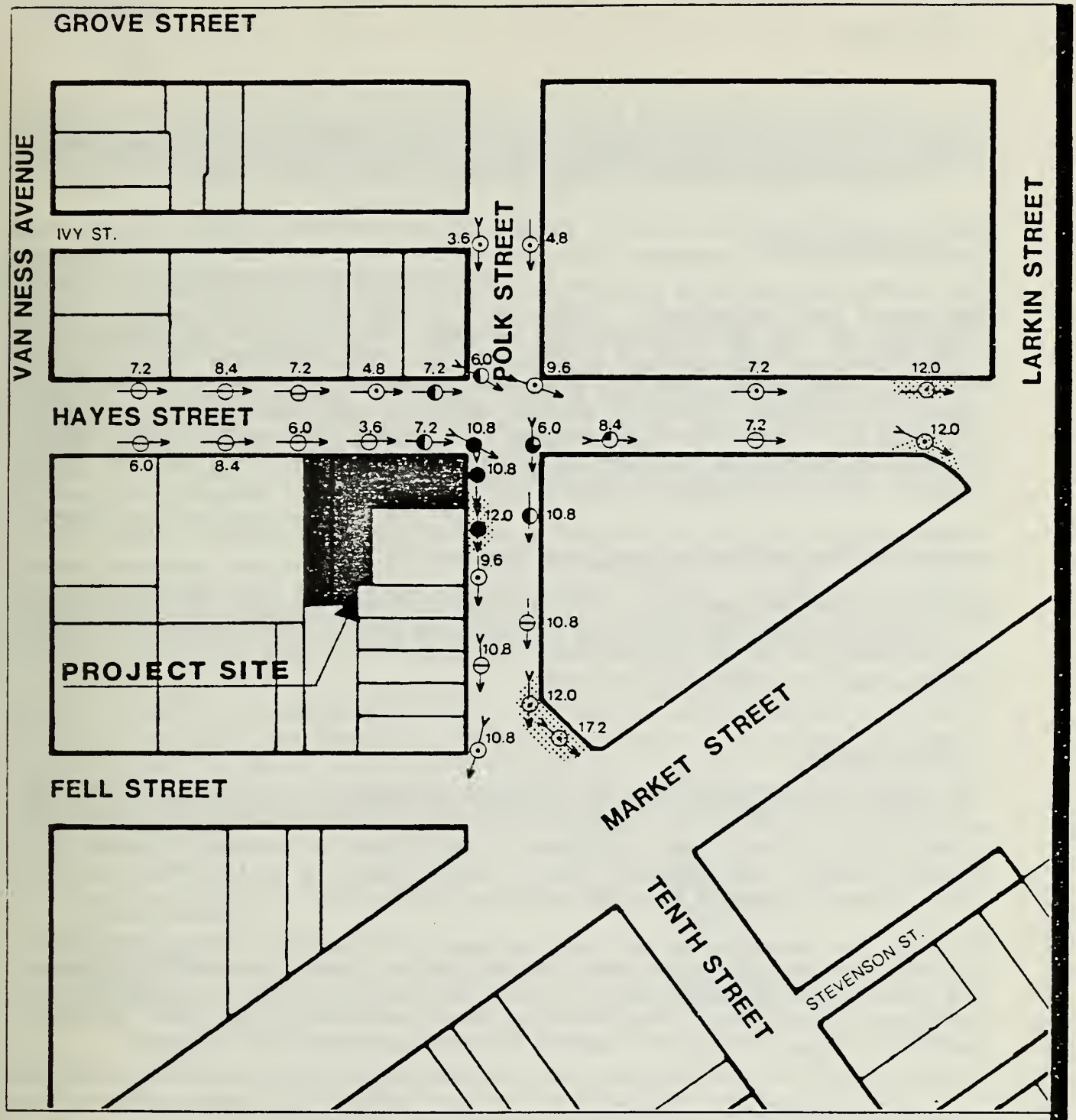
Simulation of the characteristics of natural wind is facilitated by an arrangement of turbulence generators and roughness upwind of the test section. These allow adjustments in wind characteristics to provide for different scale models and varying terrain upwind of the project site.

Measurements of windspeed around the model are made with a hotwire anemometer, a device that relates the cooling effect of the wind on a heated wire to the actual windspeed. The flow above the city is measured by a Pitot tube connected to a micromanometer. The Pitot tube and micromanometer measure directly the pressure difference between moving and still air. This pressure difference is then related to the actual windspeed. Flow visualization is achieved by use of floodlit smoke.

V. TESTING METHODOLOGY

a. Simulation of Flow

The most important factors in ensuring similarity between flow around a model in a wind tunnel and flow around the actual building are the structure of the approach flow and the geometric similarity between the model and the prototype. A theoretical discussion of the exact criteria for similarity is not included in this paper, but may be found elsewhere (Cermak, 1966, or Cermak and Arya, 1970).



○ CHANGE IN WINDSPEED NOT MEASURABLE

⊙ CHANGE OF LESS THAN ±10%

⊖ REDUCTION OF GREATER THAN 10%

◴ INCREASE OF 10-24%

◐ INCREASE OF 25-49%

◕ INCREASE OF 50-99%

● INCREASE OF OVER 100%

AREA EXCEEDING COMFORT CRITERION

COMFORT CRITERION: 11MPH
HAZARD CRITERION: 24.2MPH

NOT TO SCALE

WIND DIRECTION INDICATOR

MEAN WIND-SPEED MPH → 100

WIND DIRECTION VARIABLE

WINDSPEEDS ARE MEASURED WIND TUNNEL DATA BASED ON A REFERENCE SPEED. WIND AT BAY AREA QUALITY MANAGEMENT DISTRICT'S OFFICES AT 939 ELLIS STREET IS USED AS THE REFERENCE. A PLOTTED VALUE OF 5.0 INDICATES THAT WIND AT THAT POINT IS 5.0 MPH.

101 Hayes

WIND IMPACT ANALYSIS
NORTHWEST WINDS: PROJECT

B 1

The variation of windspeed with height (wind profile) was adjusted for the scale of the model and the type of terrain upwind of the site. The profiles used were those generally accepted as adequately describing the flow over that type of terrain (Lloyd, 1967).

b. Testing Procedure

The windflow characteristics of the site in its current state were investigated to ascertain the present wind environment. Windspeeds and wind directions at specified points throughout the site were measured and recorded. Wind direction was measured by releasing smoke at each point and recording the direction in which the smoke traveled. Windspeed measurements were made at the same points, at a scale height of 5 feet above the ground. A hotwire anemometer probe is required to make these measurements within a fraction of an inch of the model surfaces. The probe is repeatedly calibrated against the absolute reading of a Pitot tube and micromanometer. Velocity readings close to the model are generally accurate to within 10% of the true velocity.

Measurements with the project are made by keeping the probe in place while replacing the existing buildings with each proposal under consideration.

Before and after each test run, a calibration measurement was made above the model. The purpose of these measurements was to relate the wind tunnel measurements to actual wind records from the Bay Area Air Quality Management District's wind instrumentation located west of the site at 939 Ellis Street.

c. Data Analysis

The results of wind tunnel tests are measured windspeeds at selected locations on the scale model. To make this data applicable to the real world and comparable to data from other tunnels or other tests at different scales, it must be expressed in terms of a calibration speed. This calibration speed is normally taken as the free-stream velocity above the model (above the "boundary layer" formed by surface friction).

The calibration speed can be used within an assumed wind profile (variation with height) to relate measured wind tunnel data with wind data at a nearby meteorological station. The BAAMQD office, located about 0.5 miles northwest of the site, is an ideal choice. Wind-tunnel measurements have therefore been expressed as the mean windspeed expected at the point of interest, based on weather records from 939 Ellis Street.

VI. IMPACT CRITERIA

The primary impact of wind in the San Francisco area is human discomfort, and in extreme cases, human safety. Theoretical and empirical attempts to determine human comfort criteria in a cool climate such as San Francisco have not yielded a simple criterion. Obviously, variables such as temperature, clothing, levels of activity and insolation have to be considered. In the absence of a usable thermal comfort criterion, a criterion based on physical effects is often used. Physical effects that cause pedestrian discomfort are wind-blown dust, the blowing of hair and flapping of clothes, and interference with contact lenses. These physical effects all begin to occur at a windspeed of 11 mph.

Windspeeds of 35 mph can conceivably unbalance an elderly pedestrian, and represent a hazardous condition. Winds this strong are seldom measured in San Francisco, but highrise buildings can accelerate winds in localized areas well above the ambient windspeed.

In this report, measured data have been expressed as the mean windspeed. Thus, a plotted value of 5.0 means that the mean wind at that location is expected to be 5 mph when the wind is blowing from the direction in question.

Wind direction and speed frequencies have been analyzed by the BAAQMD for 1971-1978 data. The District considers San Francisco to have 3 climatic regimes: summer (May through September), winter (November through March) and a transition regime (April and October). In terms of wind-caused comfort problems, the 5-month "summer" regime is of greatest importance. The mean windspeed in the "summer" regime is 8.0 mph, in the "winter" regime it is 4.8 mph and during "transition" months it is 6.0 mph. It is during the summer that the cool temperatures, wind and clouds that San Francisco's climate is noted for are most frequent. For this reason, the statistical wind data for the 5-month "summer" regime is used to define criteria.

Summer afternoons are the windiest times in San Francisco, so wind statistics for 4 p.m. in summer have been used to develop a comfort criterion. Analysis of average by hour of day shows that the average windspeed in San Francisco varies little from noon to 6 p.m. Thus, criteria based on a 4 p.m. wind statistic should be valid for the entire afternoon.

A mean windspeed of 11 mph has been selected as the comfort criterion. A criterion for pedestrian hazard is not as straightforward. The extreme wind conditions that would result in 35 mph winds are infrequent. A statistical criterion of a frequency of 35 mph winds less than 5% of the time was selected. Because the distribution of windspeed varies wind direction, the mean windspeed corresponding to a 5% frequency of winds greater than 35 mph is different for each wind direction. The hazard criteria are shown below.

Wind Direction	Hazard Criterion
Northwest	24.2 mph
West	26.2 mph
Southwest	26.9 mph

In summary, the hazard criteria above define the mean windspeed that, if exceeded, would result in winds greater than 35 mph on more than 5% of the summer afternoons.

VII. TEST RESULTS AND DISCUSSION

Tests were conducted for northwest, west and southwest winds. Winds come from these directions 97% of the time in San Francisco during the summer, and tend to be the strongest.

Wind tunnel results are shown in Figures 1-3. Three types of data are shown. The circles indicate measurement locations. Wind direction is indicated by a "vane." The predicted mean windspeed within the project or alternative, expressed in miles per hour is plotted. The degree of change in windspeed ratio caused by the project is symbolized within the circle. Shaded areas show where the comfort or hazard criteria are exceeded.

In considering the wind tunnel results, the frequency of each wind direction is important. West winds occur about 73% of the time during the 5-month "summer" season, or about 110 days. Southwest winds occur about 13.5% of the time or 20 days of the 150-day summer. Northwest winds occur about 10.5% of the time or 16 days in the 150-day summer.

a. Northwest Winds

Wind tunnel results for the proposed project under northwest wind conditions are shown in Figure 1. The project would reduce winds along Hayes Street west of the site, but increase winds near the Hayes/Polk intersection. These increased winds would not exceed the comfort criterion however, except at the south limit of the project along the west side of Polk Street. Further south along Polk Street the project would reduce winds or have no effect. The comfort criterion would be exceeded along the east side of Polk Street at Market, but this is an existing condition apparently related to the Fox Plaza building, not affected by the proposed project. A similar situation would exist along Hayes Street at Larkin.

The hazard criterion would not be exceeded anywhere near the site.

b. West winds

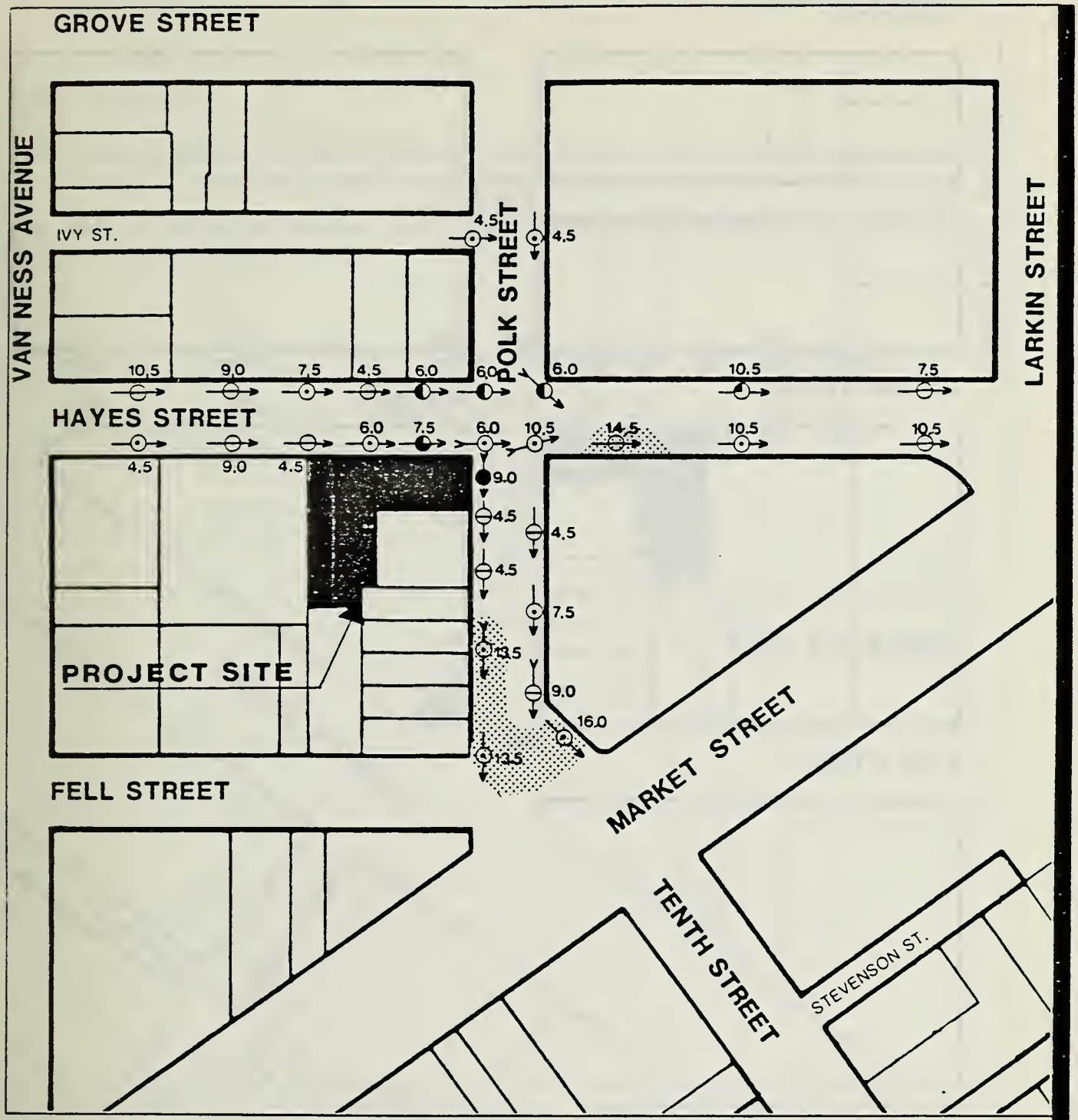
Wind tunnel results for the proposed project are shown in Figure 2. The project would reduce winds along Hayes Street west and east of the site. Wind increases would occur near the Hayes/Polk intersection adjacent the site and both north corners of the intersection. Elsewhere along Polk Street winds would be unchanged or reduced by the project.

The comfort criterion is currently exceeded on the south side of Hayes Street east of Polk Street and near the Polk/Fell/Market intersection. The project would not change winds at these locations.

c. Southwest winds

Impacts of the proposed project for southwest winds are shown in Figure 3. The project is shown to increase winds at only two locations, at the west end of the project site and south of the site along Polk Street. At no location would the project exceed the comfort criterion. Elsewhere winds would be unchanged or reduced.

The comfort criterion is currently exceeded at the south side of the Polk/Hayes intersection adjacent to the project site. These winds are apparently caused by the Fox Plaza building and would not be affected by the proposed project.



- ○ CHANGE IN WINDSPEED NOT MEASURABLE
- ⊙ CHANGE OF LESS THAN ±10%
- ⊖ REDUCTION OF GREATER THAN 10%
- ◴ INCREASE OF 10-24%
- ◐ INCREASE OF 25-49%
- ◕ INCREASE OF 50-99%
- ● INCREASE OF OVER 100%

AREA EXCEEDING COMFORT CRITERION

COMFORT CRITERION: 11MPH.
HAZARD CRITERION: 26.2MPH.

NOT TO SCALE

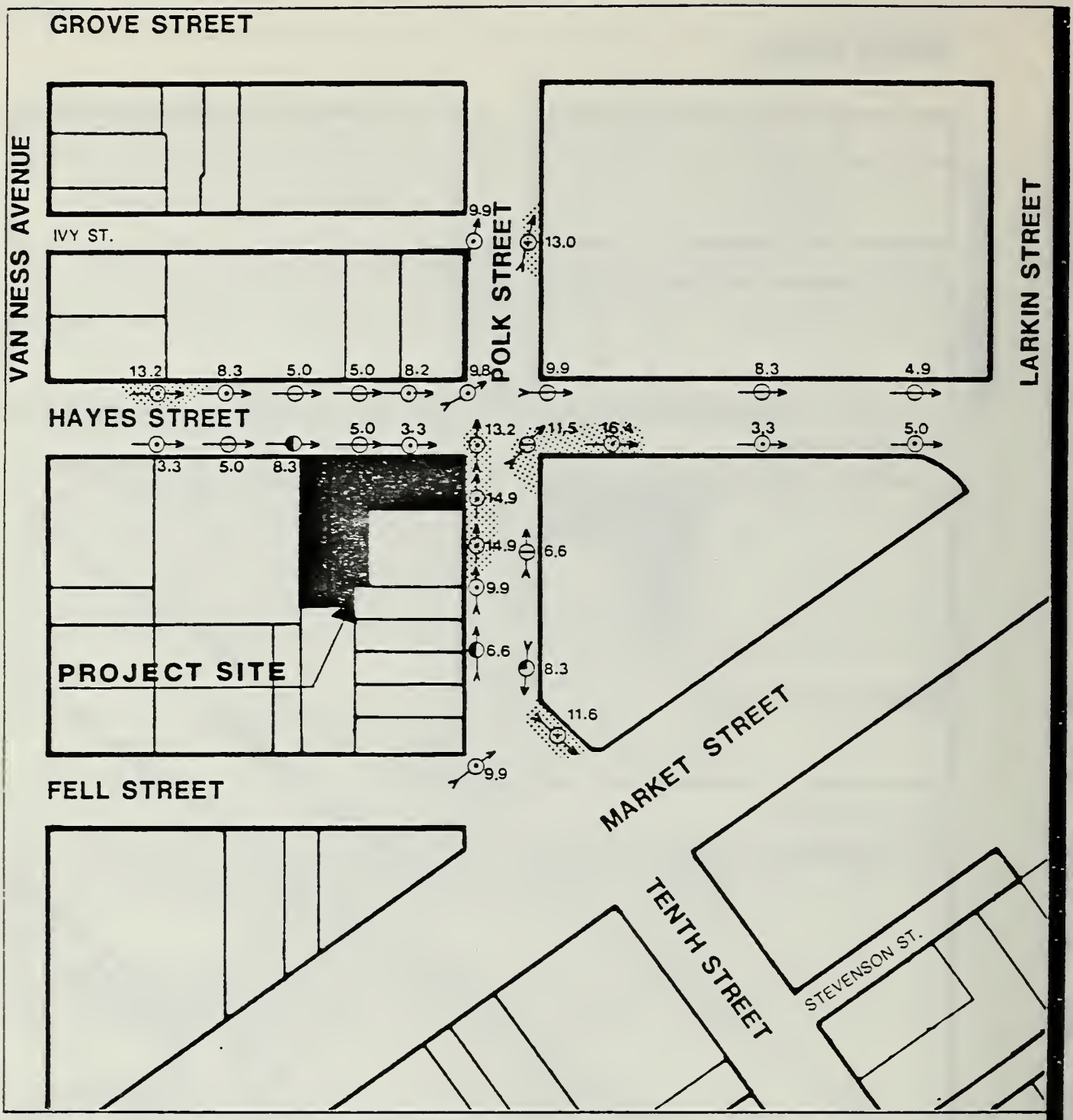
WIND DIRECTION INDICATOR
MEAN WIND-SPEED MPH → 100
WIND DIRECTION VARIABLE

WINDSPEEDS ARE MEASURED WIND TUNNEL DATA BASED ON A REFERENCE SPEED. WIND AT BAY AREA QUALITY MANAGEMENT DISTRICT'S OFFICES AT 939 ELLIS STREET IS USED AS THE REFERENCE. A PLOTTED VALUE OF 5.0 INDICATES THAT WIND AT THAT POINT IS 5.0 MPH.

101 Hayes

WIND IMPACT ANALYSIS
WEST WINDS: PROJECT

B2



- ○ CHANGE IN WINDSPEED NOT MEASURABLE
- ⊙ CHANGE OF LESS THAN ±10%
- ⊖ REDUCTION OF GREATER THAN 10%
- ◴ INCREASE OF 10-24%
- ◐ INCREASE OF 25-49%
- ◕ INCREASE OF 50-99%
- ● INCREASE OF OVER 100%

AREA EXCEEDING COMFORT CRITERION

COMFORT CRITERION: 11MPH.
HAZARD CRITERION: 26.8MPH.

NOT TO SCALE

WIND DIRECTION INDICATOR
MEAN WIND-SPEED MPH → 100
WIND DIRECTION VARIABLE

WINDSPEEDS ARE MEASURED WIND TUNNEL DATA BASED ON A REFERENCE SPEED. WIND AT BAY AREA QUALITY MANAGEMENT DISTRICT'S OFFICES AT 939 ELLIS STREET IS USED AS THE REFERENCE. A PLOTTED VALUE OF 5.0 INDICATES THAT WIND AT THAT POINT IS 5.0 MPH.

101 Hayes

WIND IMPACT ANALYSIS
SOUTHWEST WINDS: PROJECT

B3

VIII. MITIGATION

The proposed project includes a covered arcade along the Hayes Street and Polk Street frontages. This area would be useful during rainy periods as a pedestrian refuge.

No addition mitigation measures are suggested as the proposed project does not cause adverse wind accelerations.

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Appendix C

Transportation

APPENDIX C: TRANSPORTATION

CUMULATIVE LIST-BASED DEVELOPMENT

Process Used to Develop the Cumulative List of Office Projects In Downtown San Francisco:

The attached list of office and retail projects was prepared as a background document for a land use-based method of analyzing cumulative impacts. A land use-based cumulative analysis is one of the two methods of cumulative analyses suggested by the State CEQA Guidelines (Section 15130(b)(1)(A)), whereby a list of related projects is used to determine the combined effects of the whole and to determine the contribution of a proposed office or retail project to the overall cumulative effect. This is only one method of determining cumulative impacts. The other method of determining cumulative impacts is an analysis based on estimates of total employment projected for the area. This latter method is permitted by State Guidelines Section 15130(b)(1)(B) if the employment projections are based on an appropriate planning document.

The attached cumulative list is an expanded version of past lists and includes all office and large retail projects proposed, approved, under construction and recently completed in the greater downtown area which have active applications in the Department of City Planning. This list is appropriate for use only in a land-use based analyses of the cumulative impacts of office/retail projects in the greater downtown.

Relevant Redevelopment Agency projects have been included in the list. The Rincon Point/South Beach Redevelopment Area includes four projects: 77,000 sq. ft. of office space at 181 Steuart Street, 200,000 sq. ft. of office space on First Street, and a 30,000-sq.-ft. office building, all in at least preliminary negotiation stages betweeen the Agency and potential developers; and 453,000 sq. ft. of office space proposed by the U.S. Postal Service at the Rincon Annex site (Source: San Francisco Redevelopment Agency). The listing for the Yerba Buena Gardens in the YBC Redevelopment Area includes 1.2 million sq. ft. of office space in the Olympia and York proposal (Source: San Francisco Redevelopment Agency). Other office buildings in the YBC and applicable parts of the Western Addition Redevelopment Areas are listed under individual building names or addresses, based on information obtained from regular contact with redevelopment agency staff. Other jurisdictions are also contacted when the cumulative list is updated: the new 293,000-sq.-ft. State Office Building under construction at Van Ness and McAllister is included; no Federal office space is proposed in downtown San Francisco in the near future other than that at the Rincon Annex Post Office site in the Rincon Point Redevelopment Area, (Source: John Scales, General Services Administration, telephone conversation, April 11, 1984).

Hotel projects have not been included in the list because hotel uses have different peaking characteristics from office buildings and generally do not significantly affect peak-hour traffic or transit and therefore also do not contribute to effects such as maximum production of air pollutants (see 135 Main Final Supplemental EIR, EE81.61, certified November 30, 1982, p. 150). Residential projects have not been included because residential uses are extremely limited in the study area and generally are unrelated to office

uses. Residential travel in the downtown usually takes place in the contra-commute direction during peak hours and thus does not contribute to cumulative traffic or transit congestion. In addition, office trips in the p.m. peak period are assumed to be made by workers traveling to their residences. Trip generation calculated for residential uses includes persons returning to their homes after work in the p.m. peak. Inclusion in the cumulative analysis of residential uses in downtown San Francisco would double count project-generated travel: once when employees left their office building and again when they arrived at their residence if they lived in the downtown area.

Approximately 1.3 million sq. ft. of office space is proposed for locations outside the greater downtown area. All but two of these projects (San Francisco Executive Park just east of U.S. 101 near the southern border of San Francisco, proposed for about 1.1 million sq. ft., and St. Mary's Medical Office Building on Shrader at Fulton, proposed to be about 90,000 sq. ft.) are under 10,000 sq. ft. These projects are not included on the cumulative list because their impacts do not accumulate measurably with office space in the downtown area. Although the Executive Park proposal would contribute to the auto traffic on U.S. 101, the critical analysis points for p.m. peak-period cumulative downtown traffic on U.S. 101 are the freeway entrances near downtown, the approaches to the Bay Bridge, and the Alemany interchange which restricts southbound U.S. 101 traffic on the p.m. peak period. Executive Park traffic would not contribute measurably to peak demands on freeway entrances near downtown or peak direction at peak period impacts on the Alemany interchange and is factored in as part of the traffic approaching the Bay Bridge before cumulative downtown development is added. (Executive Park Subsequent DEIR, EE81.197E, September 9, 1983. Note that an EIR was prepared in 1976 for a project on this site; following permits for four of the proposed office buildings, the developer made major changes in the project that necessitated a new EIR which is now in progress.)

The Department's Master Project Log contains listings for projects which are no longer active for various reasons, such as no action by project sponsor in over one year, application withdrawn by sponsor, or project proposal revised to non-office or non-retail uses (examples of these projects include 272 Sutter, approximately 65,000 sq. ft., withdrawn by sponsor; 2nd and Harrison, 49,000 sq. ft., application revised from office space to parking lot). Some of these files have not been formally closed due to other higher staff priorities; however, the projects are not included on the cumulative list when staff assigned have concluded that the office project has been abandoned or withdrawn or the scope or nature of the proposal is so uncertain as to be not reasonably foreseeable.

In EIRs prepared during the latter half of 1983, the list used for cumulaitve analyses included a section labeled 'Completed But Not in Base Case.' As of the end of 1983, that list totaled over 6 million sq. ft. of office space and about 225,000 sq. ft. of retail space (see Table C-1, Projects Completed Before 1984, p. ___ of this document). These projects were included on earlier lists even though they were built and fully or partially occupied because some of the baseline data (measurements of the existing situation) for some transportation systems was collected in about mid-1982 and thus could not include the effects of these projects. The baseline has recently been updated to reflect 1984 for use in the Downtown Plan Draft EIR. Projects completed before 1984 are included in this updated baseline data. Using 1984 as the existing baseline situation means that projects completed by the end of 1983 should be omitted from the list of projects used for cumulative analysis in

TABLE C-1: PROJECTS COMPLETED BEFORE 1984

Assessor's Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.	Date Occupied
		Completed But Not In Base Case Analysis					
106	81.415ED	1299 Sansome	41,000	41,000	3,500	3,500	1983
141	81.151EV	100 Broadway	13,000	13,000			1983
163	EE81.1	901 Montgomery	63,000	63,000	18,800	18,800	1983
164	81.631D	847 Sansome	23,750	23,750			1983
164	81.251D	936 Montgomery	21,500	11,500			1983
196		736 Montgomery	40,000	40,000			1983
196	CU79.49	Pacific Lumber Co.	92,000	92,000			1983
206	81.165D	401 Washington/Battery	13,200	13,200	1,800	1,800	1983
228	81.610ED	569 Sacramento (C)	19,000	19,000			1983
237	DR80.6	353 Sacramento (Daon)	277,000	251,000	8,300	-2,000	1983
240	DR80.16	550 Kearny (Addition)	71,400	71,400			1983
263	CU79.12	101 California	1,265,000	1,257,000	24,700	-14,300	1983
287	81.550D	Sloane Building (C)	125,300	125,300	30,000	30,000	1983
292	DR79.13	Crocker National Bank	676,000	495,000	86,000	54,000	1983
312	EE79.370	50 Grant	90,000	90,000			1983
313	EE77.257	Nieman Marcus			143,000	128,000	1982
351	DR79.133	10 U.N. Plaza	92,050	92,050			1983
738	SFRA	One Flynn Center	25,000	25,000			1983
762	SFRA	Opera Plaza (M)	50,000	50,000			1983
3518	81.483V	291 10th St.	25,700	25,700		-25,700	1983
3702	EE81.25	1155 Market/8th	138,700	138,700	8,800	8,800	1983
3708	DR80.34	25 Jessie/Ecker Square	111,000	111,000			1983
3709	DR80.36	Five Fremont Center	791,200	722,200	35,000	17,300	1983
3712	DR79.11	Federal Reserve	640,000	640,000			1983
3717	EE78.413	150 Spear	330,000	330,000			1983
3718	DR79.12	Pacific Gateway	540,000	540,000	7,500	7,500	1983
3724	SFRA	Yerba Buena West	335,000	335,000			1983
3732	81.548DE	466 Clementina (C)	15,150	15,150			1983
3735	SFRA	Convention Plaza	339,000	339,000			1983
3735	SFRA	Planter's Hotel (C)	20,000	20,000			1983
3752	EE77-220	Office Bldg. (YBC SB-1)	11,000	11,000			1983
3763	81.287V	490 2nd at Bryant (C)	40,000	40,000			1983
3763	81.381	480 2nd at Stillman (C)	35,000	35,000			1983
3763	32.38EVD	400 2nd & Harrison	71,500	49,500			1983
3776	81.693EV	539 Bryant/Zoe	63,000	63,000			1983
TOTAL			6,504,450	6,188,450	367,400	227,700	

* (C) - Conversion (generally industrial and/or warehouse to office)
(M) - Mixed Use (office/residential/commrcial)

SOURCE: Department of City Planning.

order to avoid counting effects of the projects twice. Because some of the baseline data previously used was collected more recently than mid-1982, list-based cumulative analyses overestimated some reported impacts by measuring the effects of office buildings as part of the baseline existing situation and by including the same office building in the calculations of future cumulative impacts. For example, PG&E is already serving office buildings completed in 1982 and 1983; including those buildings in calculations of future cumulative energy demand would count them twice. Therefore, for some part of the cumulative analyses, omitting projects completed by 1983 will provide more realistic predictions of future conditions.

The Department is aware of a proposal for the Southern Pacific property near China Basin, called 'Mission Bay.' The application for environmental review for that project has been withdrawn; no other applications have been filed. The project is too speculative to analyze; intensity, density and types of uses have not yet been determined by the developer. Parts of the developer's original proposal would require major rezoning and amendment of the City's Comprehensive Plan. Further, two San Francisco Supervisors have proposed that the City acquire the property, and one neighborhood has prepared a development plan quite different from that withdrawn by the developer. Without more settled decisions about this property, it is not reasonably foreseeable, to include it in the cumulative list analysis.

The Department of City Planning is in the process of preparing plans and environmental analyses for several areas in or near the downtown. Because these plans involve only proposals for zoning and other land use controls, they are not properly part of any cumulative list. Although analyses for these plans sometimes predict amounts of office space that could be built in the area being studied, the predictions are for purposes of assessing impacts of the plans and in no way reflect proposed future development.

Use of the Department's list for estimating cumulative impacts builds in certain limitations. It assumes, for example, that all proposals will be built at essentially the size proposed and that all buildings once built will be fully occupied. It is important to note that the cumulative list has not been adjusted to reflect temporary limitations on growth impacts by the City's actions to establish a Special Use District in the South of Market and a moratorium on new office and hotel space over 50,000 sq. ft. Nor has any adjustment been made to account for reduced building potential as proposed in the Downtown Plan (base FAR of 14:1 reduced to 10:1). Thus, the total square footages on the list of projects under formal review may be overestimated, and impacts based on the square footages may also in overestimated, if some buildings are not built, not fully occupied, or reduced in size.

TABLE C-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Downtown Office Projects Under Formal Review				
59	83.177E	1620 Montgomery	82,270	45,390		
110	82.129E	1000 Front	139,000	139,000	3,000	3,000
112	83.447E	1100 Sansome	55,000	48,000		
113	82.418E	1171 Sansome	30,000	30,000		
113	82.418E	220 Green	3,520	3,520		
130	83.612C	1558 Powell	2,500	2,500		
136	83.476V	962 Battery	15,000	15,000		
192	83.412ED	1055 Stockton			81,500	66,500
194	83.128E	732 Washington	17,500	17,500	11,240	11,240
195	82.643E	660 Washington	3,938	3,938		
227	82.463E	505 Montgomery	327,300	300,670	12,100	-4,775
228	83.422E	560 Sacramento	48,000	31,000		
229	83.222EC	Embarcadero West	575,000	382,000	9,000	9,000
236	82.511E	222 Front	40,250	33,400	3,250	-0-
258	82.421E	Pine/Kearny	186,000	186,000	6,750	6,750
266	83.420ED	98 Battery	169,000	106,500		
267	83.421ED	225 Pine	134,000	134,000		
287	83.91ED	237 Kearny/Bush	99,600	87,800	6,100	2,400
285	83.148E	665 Bush (M)	12,400	2,600		-2,700
309	83.333E	212 Stockton	32,220	15,885	21,700	16,200
326	8312187	156 Ellis	3,200	3,200		
327	82.445E	Stockton/O'Farrell	43,300	25,750	57,950	28,000
331	81.448E	Mixed Use Development	50,000	50,000	70,000	49,000
336	83.21ECV	440 Turk	25,000	8,150		
642	83.218V	1699 Van Ness	20,000	20,000		
814	81.540E	101 Hayes	132,000	132,000	6,000	6,000
3526	83.475V	530-550 9th	42,300	42,300		
3702	83.196E	1169 Market, Trinity	820,000	805,000	40,000	40,000
3704	83.404	901 Market Penney's	145,500	126,000	80,000	80,000
3705	83.314E	5th and Market	880,000	778,000	120,000	40,000
3707	SFRA	YBC Office Bldg.	593,000	593,000		
3708	81.297ED	562 Mission	405,000	265,000	10,000	10,000
3708	83.75E	49 Stevenson	169,600	136,900	9,800	-2,900
3721	83.331E	100 First @ Mission	348,920	342,000		
3721	83.40EZD	524 Howard	279,000	279,000	15,000	15,000
3735	83.313E	35 Hawthorne	47,400	47,400	2,900	2,900
3736	83.311E	299 2nd @ Folsom	206,000	171,000	10,000	10,000
3744	84.41E	Hills Bros.	635,000	535,000	40,000	40,000

(continued on next page)

TABLE C-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Downtown Office Projects Under Formal Review				
3749	83.464EV	50 Guy Place	17,500	17,500		
3752	83.310E	837 Folsom	200,000	200,000		
3769	83.213EV	59 Harrison	113,500	49,750		
3776	83.451E	501 Bryant	67,000	35,000	14,000	4,000
3778	83.547E	775 Bryant	27,890	27,890	3,675	3,675
3786	82.33E	655 5th/Townsend	126,250	126,250		
3786	83.272EV	525 Brannan	13,500	13,500		
3788	82.352EV	640 2nd	39,100	37,400		
3789	82.31EV	615 2nd/Brannan (C)	90,000	70,000	9,300	9,300
3794	83.545V	139 Townsend	51,200	50,000		
3923	81.491EVF	1550 Bryant	80,600	49,600		
-	SFRA	Yerba Buena Gardens	1,340,000	1,340,000		
-	SFRA	Rincon Point/S. Beach	760,000	760,000		
TOTAL UNDER FORMAL REVIEW			9,744,260	8,721,295	643,265	442,590
		Major Downtown Office Projects; Approved, Not Yet Under Construction				
65	82.168V	990 Columbus	12,000	12,000		
112	81.258	Ice House (C)	209,000	209,000		
164	81.573D	50 Osgood Place	22,500	22,500	9,100	9,100
176	83.229E	801 Montgomery	31,800	31,800	6,200	6,200
176	82.368E	900 Kearny	25,000	25,000	5,000	5,000
225	81.403ED	814 Stockton	3,500	3,500	3,300	3,300
265	81.195ED	388 Market at Pine (M)	234,500	85,500	10,000	-8,500
268	81.422D	250 Montgomery at Pine	105,700	65,700	8,000	8,000
271	83.13E	582 Bush	18,100	18,100	800	800
288	81.687ED	222 Kearny/Sutter	150,000	49,950	10,000	-8,400
294	82.870	44 Campton Place	7,600	7,600		
642	82.224VEC	1750 California	82,525	82,525		
647	82.24V	1581 Bush (C)	16,000	16,000		
669	81.667ED	1361 Bush	13,000	13,000		
690	SFRA	Post/Van Ness	88,000	88,000		
716	81.581ED	Polk/O'Farrell (M)	61,600	61,600	22,400	22,400
818	83.94EV	583-591 Hayes (C)	4,900	4,900		
3524	82.137V	44 Gough (C)	30,000	30,000		

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TABLE C-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Major Downtown Office Projects; Approved, Not Yet Under Construction				
3702	81.549ED	1145 Market	137,500	108,500	8,000	8,000
3705	80.315	Apparel Mart III	332,400	332,400		
3707	81.492ED	90 New Montgomery	124,300	124,300	3,350	3,350
3707	81.245DA	New Montgomery Pl.	227,500	209,700	2,200	-3,900
3708	81.493ED	71 Stevenson	324,600	324,600	6,200	6,200
3709	81.113ED	Central Plaza	353,100	136,300	17,400	17,400
3717	81.183E	123 Mission	342,800	342,800		
3724	81.102E	Holland Ct. (C)	27,850	27,850		
3729	82.860	774 Tehama	5,800	5,800		
3733	EE81.2	868 Folsom	65,000	65,000		
3733	82.29E	832 Folsom	50,000	50,000		
3735	SFRA	75 Hawthorne (C)	61,900	61,900		
3738	DR80.5	315 Howard	294,000	294,000	3,200	3,200
3749	EE81.18	Marathon - 2nd & Folsom	686,700	686,700	35,300	35,300
3750	82.241E	600 Harrison	228,000	228,000	10,000	10,000
3750	82.77V	642 Harrison (C)	54,400	45,900		
3764	82.591E	Second St. Sq. (C)*	333,000	263,000	25,000	25,000
3775	81.147V	338-340 Brannan (C)	36,000	36,000		
3776	EE81.59	Welsh Commons (M)	55,600	55,600	12,000	12,000
3788	81.296Z	690 2nd/Townsend (C)	16,600	16,600	16,000	16,000
3789	81.552EV	625 2nd/Townsend (C)	157,000	157,000		
3794	81.569EV	123 Townsend	104,000	49,500		
3794		155 Towsend	19,000	19,000		
3803	81.244D	China Basin Expansion	196,000	196,000		
9900	81.63E	Ferry Building Rehab.	309,500	97,500	163,500	124,000
TOTAL APPROVED			5,658,275	4,760,625	376,950	294,450
		Major Downtown Office Projects Under Construction				
58	82.234E	Roundhouse (C)	45,000	45,000	3,000	3,000
136	81.245	955 Front/55 Green	50,000	50,000		
143	81.353ED	1000 Montgomery (C)	39,000	39,000		
146	83.99EC	644 Broadway	42,800	42,800		
161	DR80.191	Mirawa Center	36,000	36,000	30,650	30,650
166	DR80.15	750 Battery	105,400	105,400	12,800	12,800
166	CU81.7	222 Pacific at Front (C)	142,000	142,000		

(continued on next page)

TABLE C-2: CUMULATIVE OFFICE DEVELOPMENT IN DOWNTOWN SAN FRANCISCO AS OF MARCH 10, 1984 (continued)

Block	Case No.	Project Name	Office (Gross Sq. Ft.) Total New Constr.	Office (Gross Sq. Ft.) Net New Constr.	Retail (Gross Sq. Ft.) Total New Constr.	Retail (Gross Sq. Ft.) Net New Constr.
		Major Downtown Office Projects Under Construction				
167	SFRA	Golden Gateway III	103,000	103,000		
176	81.673EACV	Columbus/Pacific (Savoy)	49,000	49,000	22,000	22,000
208	81.104EDC	Washington/Montg. (M)	235,000	233,300	4,000	-1,200
227	EE80.296	Bank of Canton	230,500	177,500		-800
239	DR80.1	456 Montgomery	160,550	160,550	24,250	24,250
240	81.705ED	580 California/Kearny	329,500	260,000	6,500	6,500
261	81.249ECQ	345 California (M)	640,000	466,500	15,500	15,500
262	81.206D	130 Battery	41,000	41,000		
270	81.175ED	466 Bush	86,700	86,700	7,800	2,200
271	81.517	453 Grant	27,500	27,500	6,200	6,200
288	81.461EC	333 Bush (Campeau) (M)	498,400	458,100	20,900	20,900
288	DR80.24	101 Montgomery	264,000	234,000	4,900	-14,100
289	81.308D	One Sansome	603,000	603,000	7,000	7,000
311	82.120D	S.F. Federal	246,800	218,850	1,600	-9,440
351	DR79.24	Mardikian/1170 Market	40,000	40,000		
641	82.200CV	1735 Franklin (C)	8,600	8,600		
672	SFRA	Wealth Investments	104,500	104,500		
743	SFRA	Van Ness/Turk (Vanguard)	85,000	85,000		
767	STATE	State Office Building	293,300	293,300		
816	82.212ED	300-350 Gough (M/C)	16,000	16,000		
834	82.603E	25 Van Ness (C)	101,800	42,800	36,400	36,400
3512	82.14	Van Ness Plaza	170,000	170,000	6,000	6,000
3715	82.16EC	121 Steuart	33,200	33,200		
3715		141 Steuart	80,000	80,000		
3717	EE79.236	101 Mission	219,350	219,350		
3717	EE80.349	Spear/Main (160 Spear)	279,000	279,000	7,600	7,600
3717	82.82D	135 Main	260,000	260,000	4,000	4,000
3722	81.417ED	144 Second at Minna	30,000	30,000		
3741	82.203C	201 Spear	229,000	229,000	5,200	5,200
3787	81.306	252 Townsend at Lusk	61,000	61,000		
TOTAL UNDER CONSTRUCTION			5,985,900	5,530,950	226,300	184,660
GRAND TOTAL (ALL PROJECTS)			21,388,430	19,012,870	1,246,515	921,700

* (C) - Conversion (generally industrial and/or warehouse to office)
(M) - Mixed Use (office/residential/commercial)

SOURCE: Department of City Planning

TABLE C-3: PASSENGER LEVELS OF SERVICE ON BUS TRANSIT

Level of Service	Description	Passengers per Seat
A	Level of Service A describes a condition of excellent passenger comfort. Passenger loadings are low with less than half the seats filled. There is little or no restriction on passenger maneuverability. Passenger loading times do not affect scheduled operation.	0.00-0.50
B	Level of Service B is in the range of passenger comfort with moderate passenger loadings. Passengers still have reasonable freedom of movement on the transit vehicle. Passenger loading times do not affect scheduled operations.	0.51-0.75
C	Level of Service C is still in the zone of passenger comfort, but loadings approach seated capacity and passenger maneuverability on the transit vehicle is beginning to be restricted. Relatively satisfactory operating schedules are still obtained as passenger loading times are not excessive.	0.76-1.00
D	Level of Service D approaches uncomfortable passenger conditions with tolerable numbers of standees. Passengers have restricted freedom to move about on the transit vehicle. Conditions can be tolerated for short periods of time. Passenger loadings begin to affect schedule adherence as the restricted freedom of movement for passengers requires longer loading times.	1.01-1.25
E	Level of Service E passenger loadings approach manufacturers' recommended maximums and passenger comfort is at low levels. Freedom to move about is substantially diminished. Passenger loading times increase as mobility of passengers on the transit vehicle decreases. Scheduled operation is difficult to maintain at this level. Bunching of buses tends to occur which can rapidly cause operations to deteriorate.	1.26-1.50
F	Level of Service F describes crush loadings. Passenger comfort and maneuverability is extremely poor. Crush loadings lead to deterioration of scheduled operations through substantially increased loading times.	1.51 1.60

SOURCE: Environmental Science Associates, Inc. from information in the Interim Materials on Highway Capacity, Transportation Research Circular 212, pp. 73-113, Transportation Research Board, 1980.

M OCEAN VIEW - CIVIC CENTER STATION
Wednesday - 8:20 A.M. - Inbound

L TARAVAL - VAN NESS STATION
Wednesday - 4:50 P.M. - Outbound

14 MISSION - MISSION STREET AND SOUTH VAN NESS AVE
Tuesday - 5:45 P.M. - Outbound

N JUDAH - DUBOCE AND CHURCH
Wednesday - 8:00 A.M. - Inbound

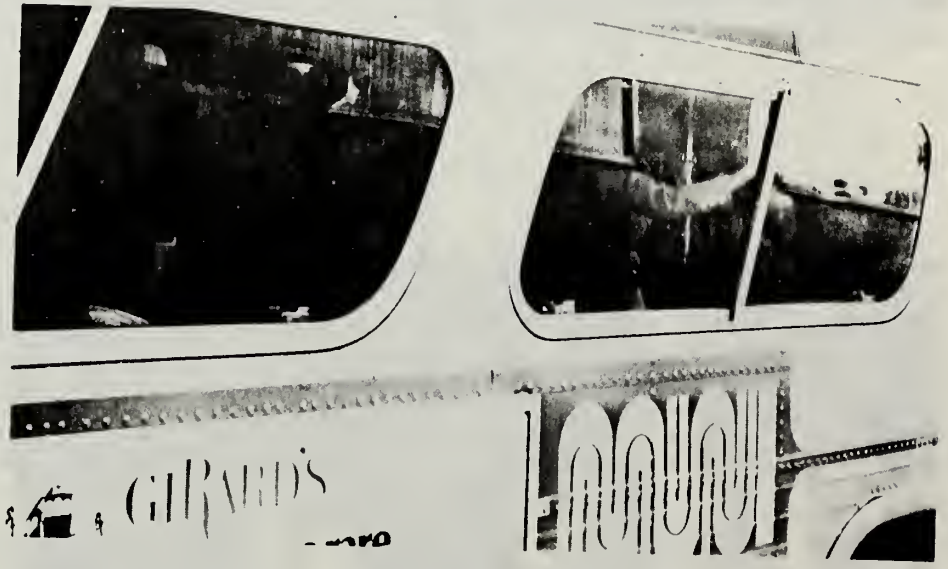
SOURCE: ESA

FIGURE C-1
PHOTOS OF MUNI PEAK LOADING CONDITIONS

K INGLESIDE - VAN NESS STATION
Wednesday - 8:00 A.M. - Inbound

N JUDAH - VAN NESS STATION
Wednesday - 5:00 P.M.-Outbound

38 GEARY - VAN NESS AVE. AND O'FARRELL ST.
Wednesday - 9:00 A.M. - Inbound



38 GEARY - VAN NESS AVE. AND GEARY BLVD.
Wednesday - 4:20 P.M. - Outbound

SOURCE: ESA

FIGURE C-1(CONTINUED)
PHOTOS OF MUNI PEAK LOADING CONDITIONS

30X MARINA EXPRESS - BAYSHORE AVE. AND ARIETA AVE.
Wednesday - 8:00 A.M. - Inbound

J CHURCH - CHURCH ST. AND DUBOCE AVE.
Tuesday - 9:00 A.M. - Inbound

SOURCE: ESA

FIGURE C-1(CONTINUED)
PHOTOS OF MUNI PEAK LOADING CONDITIONS

PEDESTRIAN ANALYSIS

The pedestrian analysis has been conducted following methods developed by Pushkarev and Zupan in Urban Space for Pedestrians (MIT Press, 1975). Table C-2 shows the relationship between pedestrian flow rates and the flow regimes (categories) used to describe levels of operation. Figure C-2 shows photographs of pedestrian conditions that correspond to the flow regimes.

TABLE C-4: PEDESTRIAN FLOW REGIMEN

FLOW REGIME/a/	CHOICE	CONFLICTS	FLOW RATE (p/f/m)/b/
Open	Free Selection	None	less than 0.5
Unimpeded	Some Selection	Minor	0.5 to 2.0
Impeded	Some Selection	High Indirect Interaction	2.1 to 6.0
Constrained	Some Restriction	Multiple	6.1 to 10.0
Crowded	Restricted	High Probability	10.1 to 14.0
Design Limit - Upper Limit of Desirable Flow			
Congested	All Reduced	Frequent	14.1 to 18.0
Jammed	Shuffle Only	Unavoidable	Not applicable/c/

/a/ Photographs of these conditions are shown in Figure C-2, p. A-__.
/b/ P/F/M = Pedestrians per foot of effective sidewalk width per minute.
/c/ For Jammed Flow, the (attempted) flow rate degrades to zero at complete breakdown.

SOURCE: Urban Space for Pedestrians, MIT Press, 1975, Cambridge, MA.

The borderline between IMPEDED and UNIMPEDED FLOW, with about 130 sq ft (12 m^2) per person, or a flow rate of about 2 people per min per ft (6.5 per m) of walkway width. Individuals as well as couples visible in this view have a choice of speed and direction of movement. This rate of flow is recommended for design of outdoor walkways in office districts and other less dense parts of downtown areas.

The uneven nature of UNIMPEDED FLOW. While the people walking in the plaza—which is 17 ft (5.2 m) wide, compared to 23 ft (7 m) in the preceding picture have almost 130 sq ft (12 m^2) per person on the average, the space allocation for the eight individuals in the foreground is closer to 70 sq ft (6.4 m^2). Thus, indirect interaction with others is still quite frequent in the upper range of UNIMPEDED FLOW.

The midpoint of the IMPEDED FLOW range, with about 75 sq ft (6.9 m^2) per person, or a flow rate of about 4 people per min per ft (13 per m) of walkway width. Physical conflicts are absent, but pedestrian navigation does require constant indirect interaction with others. This rate of flow is recommended as an upper limit for the design of outdoor walkways in shopping districts and other dense parts of downtown areas.

Lower range of UNIMPEDED movement, approaching OPEN FLOW. About 350 sq ft (32.2 m^2) per person, or a flow rate of less than 1 person per min per ft (3.3 per m) of walkway width. Complete freedom to select the speed and direction of movement; individuals behave quite independently of each other. For a design standard based solely on pedestrian density, this amount of space can be considered excessive.

SOURCE: Pushkarev and Zupan

FIGURE C-2
PHOTOS OF PEDESTRIAN FLOW LEVELS

JAMMED FLOW. Space per pedestrian in this view is about 3.8 sq ft (0.35 m^2). This is representative of the lower half of the speed-flow curve, where only shuffling movement is possible and even the extremely uncomfortable maximum flow rate of 25 people per min per ft (82 per m) of walkway width cannot be attained due to lack of space. Photograph by Louis B. Schlivek.

The threshold of CONGESTED FLOW. The first eleven people in the view have about 16 sq ft (1.5 m^2) per person, corresponding to a flow rate of about 15 people per min per ft (49 per m) of walkway width. The beginnings of congestion are evident in bodily conflicts affecting at least three of the walkers, and in blocked opportunities for walking at a normal pace.

The onset of CROWDED FLOW, with an average of about 24 sq ft (2.2 m^2) per person, or a flow rate of about 10 people per min per ft (33 per m) of walkway width. Choice of speed is partially restricted, the probability of conflicts is fairly high, passing is difficult. Voluntary groups of two, of which two can be seen in the picture, are maintained, but cause interference. Note also some overflow into the vehicular roadway in the background.

The midpoint of the CONSTRAINED FLOW range, with about 30 sq ft (2.8 m^2) per person, or a flow rate of about 8 people per min per ft (26 per m) of walkway width. The choice of speed is occasionally restricted, crossing and passing movements are possible, but with interference and with the likelihood of conflicts. The man in the dark suit seems to be able to cross in front of the two women in the foreground quite freely, but in the background near the curb people are having difficulty with passing maneuvers.

SOURCE: Pushkarev and Zupan

FIGURE C-2 (CONTINUED)
PHOTOS OF PEDESTRIAN FLOW LEVELS

TABLE C-5: VEHICULAR LEVELS OF SERVICE AT SIGNALIZED INTERSECTIONS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.	less than 0.60
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.	0.61-0.70
C	Level of Service C describes a condition where the approach to an intersection is often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.	0.71-0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operation can generally be described as fair.	0.81-0.90
E	Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting up-stream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.	0.91-1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01+

/a/ Capacity is defined as Level of Service E.

SOURCE: San Francisco Department of Public Works, Traffic Division, Bureau of Engineering from Highway Capacity Manual, Highway Research Board, 1965

INTERSECTION ANALYSIS

The capacity analysis of each intersection at which a turning movement count was made utilized the "critical lane" method. This method of capacity calculation is a summation of maximum conflicting approach lane volumes that gives the capacity of an intersection in vehicles per hour per lane. (This method is explained in detail in an article entitled "Intersection Capacity Measurement Through Critical Movement Summations: A Planning Tool," by Henry B. McInerney and Stephen G. Peterson, January 1971, Traffic Engineering. This method is also explained in "Interim Materials on Highway Capacity", Transportation Research Circular No. 212, Transportation Research Board, January 1980). The maximum service volume for Level of Service E was assumed as intersection capacity. A service volume is the maximum number of vehicles that can pass an intersection during a specified time period in which operating conditions are maintained corresponding to the selected and specified Level of Service (see Table C-3). For each intersection analyzed, the existing peak-hour volume was computed and a volume-to-capacity (v/c) ratio was calculated by dividing the existing volume by the capacity at Level of Service E.

TABLE C-6: TRAFFIC LEVELS OF SERVICE FOR FREEWAYS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.00-0.60
B	Level of Service B is in the higher speed range of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted.	0.61-0.70
C	Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the highervolumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained.	0.71-0.80
D	Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.	0.81-0.90
E	Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds (typically about 30 to 35 mph) than in Level D, with volumes at or near the capacity of the highway. Flow is unstable, and there may be stoppages of momentary duration.	0.91-1.00
F	Level of Service F describes forced flow operation at low speeds (less than 30 mph), in which the freeway acts as storage for queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion. In the extreme, both speed and volume can drop to zero.	1.00+

/a/ Capacity is defined as Level of Service E.

SOURCE: Environmental Science Associates, Inc. from information in the Highway Capacity Manual, Special Report 87, Highway Research Board, 1965.

Appendix D

Office Development and Housing

TABLE . D-1

MAJOR OFFICE BULDING
CONSTRUCTION IN SAN FRANCISCO
(In gross square feet)

Year	Total Gross Square Feet Completed	5-Year Total	5-Year Annual Average	Cumulative Total of Office Buildings[2]	Cumulative Total of All Downtown Office Buildings[3]
Pre-1960				28,145,000	24,175,000
1960	1,183,000				
1961	270,000				
1962	-				
1963	-				
1964	1,413,000				
1960-1964		2,866,000 (2,580,000)[3]	573,200 (516,000)[3]	30,725,000	26,754,000
1965	1,463,000				
1966	973,000				
1967	1,453,000				
1968	1,234,000				
1969	3,256,000				
1965-1969		8,379,000 (7,541,000)[3]	1,675,800 (1,508,000)[3]	38,266,000	34,295,000
1970	1,853,000				
1971	-				
1972	1,961,000				
1973	2,736,000				
1974	2,065,000				
1970-1974		8,615,000 (7,753,000)[3]	1,723,000 (1,550,000)[1]	46,019,000	42,048,000

(continued)

TABLE . D-1

MAJOR OFFICE BULDING
CONSTRUCTION IN SAN FRANCISCO

(continued)

Year	Total Gross Square Feet Completed	5-Year Total	5-Year Annual Average	Cumulative Total of All Office Buildings[2]	Cumulative Total of All Downtown Office Buildings[3]
1975	536,000				
1976	2,429,000				
1977	2,660,000				
1978	-				
1979	2,532,000				
1975-1979		8,157,000 (7,341,000)[1]	1,631,400 (1,468,000)[1]	53,360,000	49,389,000
1980	1,284,000				
1981	3,029,000				
1982	3,771,000				
1983	4,107,700				
1980-1982		12,191,700[4] 10,972,500[1]	3,047,900[4] 2,743,100[1]	64,332,500	62,100,000

[1]Total net square feet (90% of gross). Net new space is added at an increase factor of 90%, since it is assumed that space equal to 10% of a new building is demolished to make land available for the new replacement building

[2]San Francisco Downtown Zoning Study, Working Paper No. 1, January 1966, Appendix Table 1, Part 1. For pre-1965, data include the area bounded by Vallejo, Franklin, Central Skyway, Bryant and the Embarcadero. Pre-1965 data also includes one-third of retail/office mixed use. For post-1964, data include the entire city.

[3]Gross floor space for downtown offices is included for the following functional areas: Financial, Retail, Hotel, Jackson Square, Golden Gateway, Civic Center, South of Market, and Outer Market Street as defined in the cited January 1966 report. For post-1964, the entire area east of Franklin Street is included.

[4]Four-year total and average.

Source: Department of City Planning, March 15, 1983

Cum Dev. App.

TABLE D-2

HOUSING AFFORDABILITY BY HOUSEHOLD INCOME

Gross Annual Income Per Household or Per Individual	Maximum Affordable Monthly Housing Expenditure*	Housing Cost and Type of Unit		
		Monthly Cost**	Type of Unit (Price)	Source
$5,000	$125			
8,300 (a)	208			
10,000	250			
10,680	267	$267 -	Census Median Rent	(e1)
11,560	289	289 -	Studio Apartments	(f1)
15,000	375			
18,200	455	455 -	Median Rent, All Units	(f2)
20,000	500			
23,520	588	588 -	Rent, 3+ Bedroom Units	(f3)
25,000 (b)	625			
27,300 (c)	683			
30,000 (b)	750			
35,000	875			
40,000	1,000			
40,880	1,022	1,022 -	Lowest House Price ($95,000)	(g1)
45,000	1,125	1,125 -	Census Median Value (104,600)	(e2)
50,000	1,250			
52,560	1,314			
55,000	1,375			
65,080	1,627	1,627 -	Median House Price (151,203)	(g2)
101,880	2,547	2,547 -	Highest House Price (236,750)	(g3)
300,000 (d)	7,500			

(continued)

TABLE D-2 (continued)

* The Office Housing Production Program (OHPP) Interim Guidelines, January, 1982, define affordable housing as follows:

rental expenses not exceeding 30% of gross monthly income, adjusted for family size; and home ownership expenses not exceeding 38% of gross monthly income, adjusted for family size, including mortgage payments, property taxes, insurance, and/or homeownership association dues.

For the purpose of this table, 30% of gross monthly income is used to calculate housing affordability for both renters and owners. For owners it is assumed that eight percent of gross monthly income would cover property taxes, insurance, and/or homeownership association dues and other related expenses. No adjustment has been made for family size because family circumstances vary widely.

** Monthly housing costs refer to rents and mortgage payments for the housing prices shown in parentheses; sources of rents and house prices are as footnoted. Monthly costs of ownership housing were calculated as monthly mortgage expenses assuming 20% down payment, 30-year mortgage, and 16% interest rate, not including insurance, property taxes, and other related housing costs.

a. U.S. Bureau of Labor Statistics, March, 1981, "Area wage survey for the San Francisco-Oakland, California Metropolitan Area." $8,300 was the mean 1980 income of inexperienced file clerks, one of the lowest-paid office occupations listed.

b. The range of $25,000 to $30,000 is assumed to approximate the median annual income of project employees (see discussion of Income, p. 27).

c. The $27,300 income figure was derived by inflating the $16,300 median income of downtown office workers from the 1974 SPUR survey through December, 1981 by 67% using U.S. Bureau of Labor Statistics national wage information for nonsupervisory finance, insurance, and real estate sector employees since 1974.

d. Montgomery-Washington Building FEIR, 81.104E, certified January 28, 1982. The median salary of wage earners at 601 Montgomery St. was estimated to be $52,560 and the highest salary for corporate officers $300,000, according to a 1981 survey.

e. City Planning and Information Services, "1980 Census Information," March 1982: 1. median rent 2. median noncondominium housing value
Rental data include residential hotels whose rent levels may be substantially lower than other types of rental dwellings and may therefore have an effect on the median rent.

f. Department of City Planning, "Rent Survey," 1980. Median rents are for:
1. studio apartments 2. all units 3. 3+ bedrooms
These data are based on a small nonrandom sample of newspaper ads and may not reflect true rental costs.

g. San Francisco Board of Realtors, "Multiple Sales Service," October 5, 1981. (Annual data on housing sales prices including all homes sold from February 11, 1981 to October 1, 1981):
1. lowest price 2. median price 3. highest price

SOURCE: 580 California Street Office Building, Final EIR, (81.705E), 1982